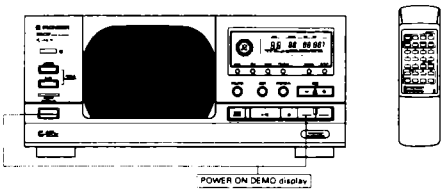
PIONEER
The Art of Entertainment

Service Manual



ORDER NO.
RRV1582

FILE-TYPE CD PLAYER

PD-F905

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Remarks
	PD-F905		
KU	O	AC120V	
KC	O	AC120V	

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1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).

When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

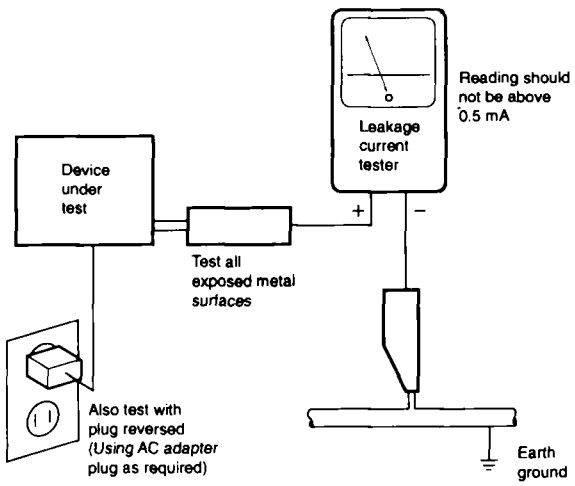
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.


Reading should not be above 0.5 mA
Leakage current tester
Device under test
+
−
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ! on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

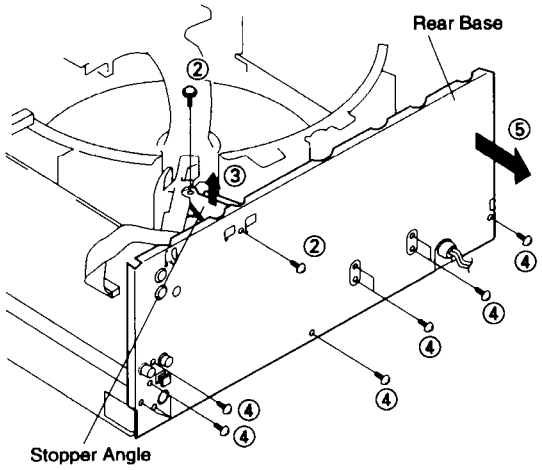
2. DISASSEMBLY

■ REMOVING THE LOADING MECHANISM ASSY

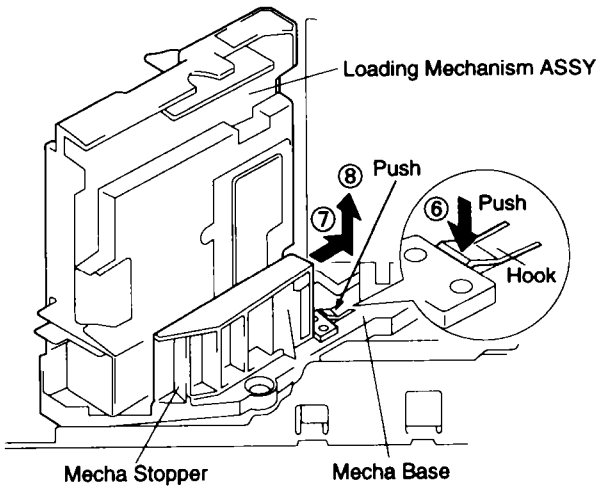
① Remove the Bonnet.

②-③ Remove the Screws and Stopper Angle.

④-⑤ Remove the Screws and Rear Base.

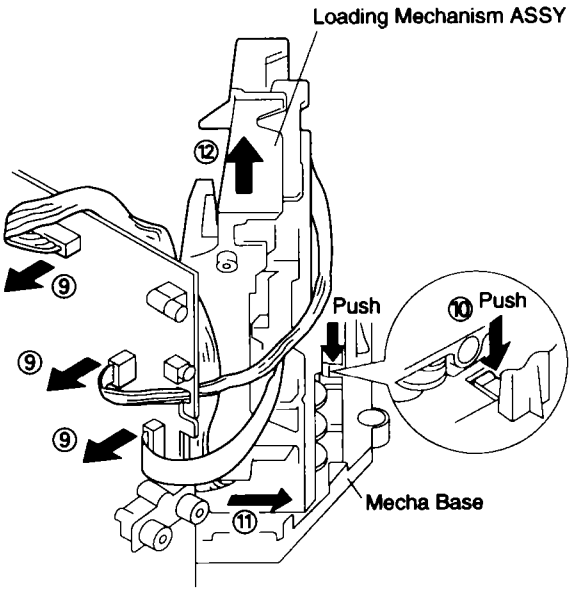


⑥-⑧ While holding down the hook of the Mecha Base, slide the Mechanism Stopper toward the right to pull up and remove the Mecha Stopper.



⑨ Remove the each wire.

⑩-⑫ While holding down the hook of the Mecha Base, slide the Loading Mechanism Assy to pull up and remove the Loading Mechanism Assy.



■ REMOVING THE OPERATION PANEL

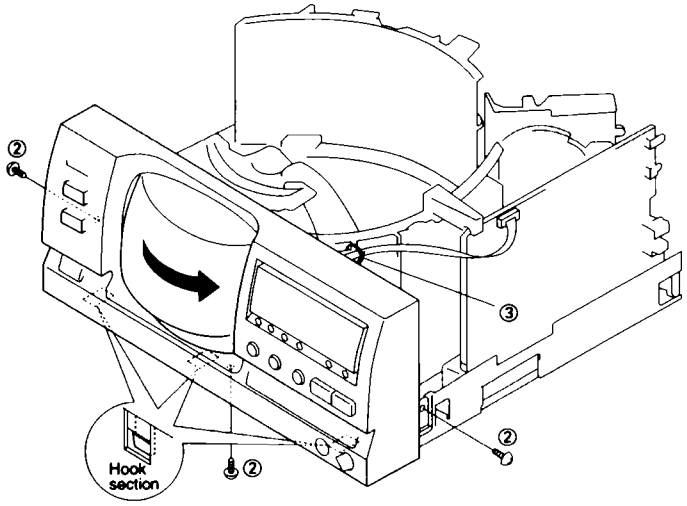
① Remove the Bonnet.

② Remove the Screws.

③ Cut the Binder securing the wire material.

④ Remove the Center Pole. (Refer to the "REMOVING THE DISC RACK")

⑤ Shift the Front Panel slightly toward you while paying attention to the back side hooks on the Chassis.

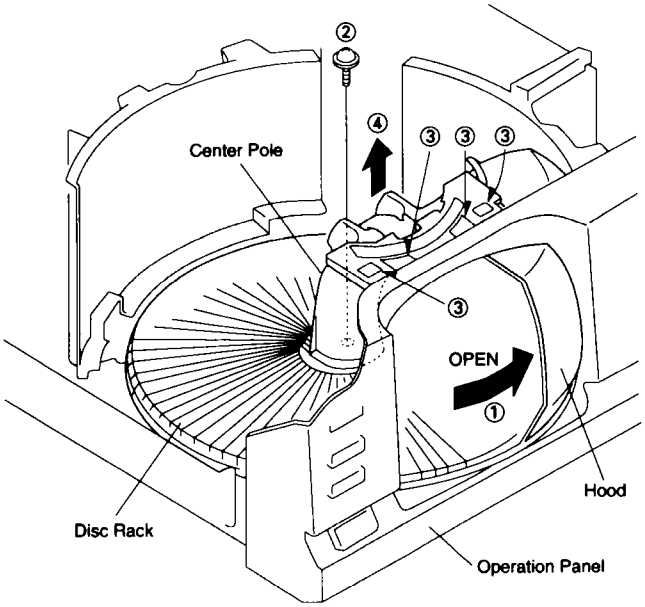


■ REMOVING THE DISC RACK

① Open the Hood.

② Remove the Screws.

③-④ Press the 4 hooks to remove the Center Pole from the Operation Panel.



■ REMOVE THE HOOD AND HOOD BASE

① Remove the Bonnet.

② Remove the Operation Panel. (Refer to the "REMOVING THE OPERATION PANEL")

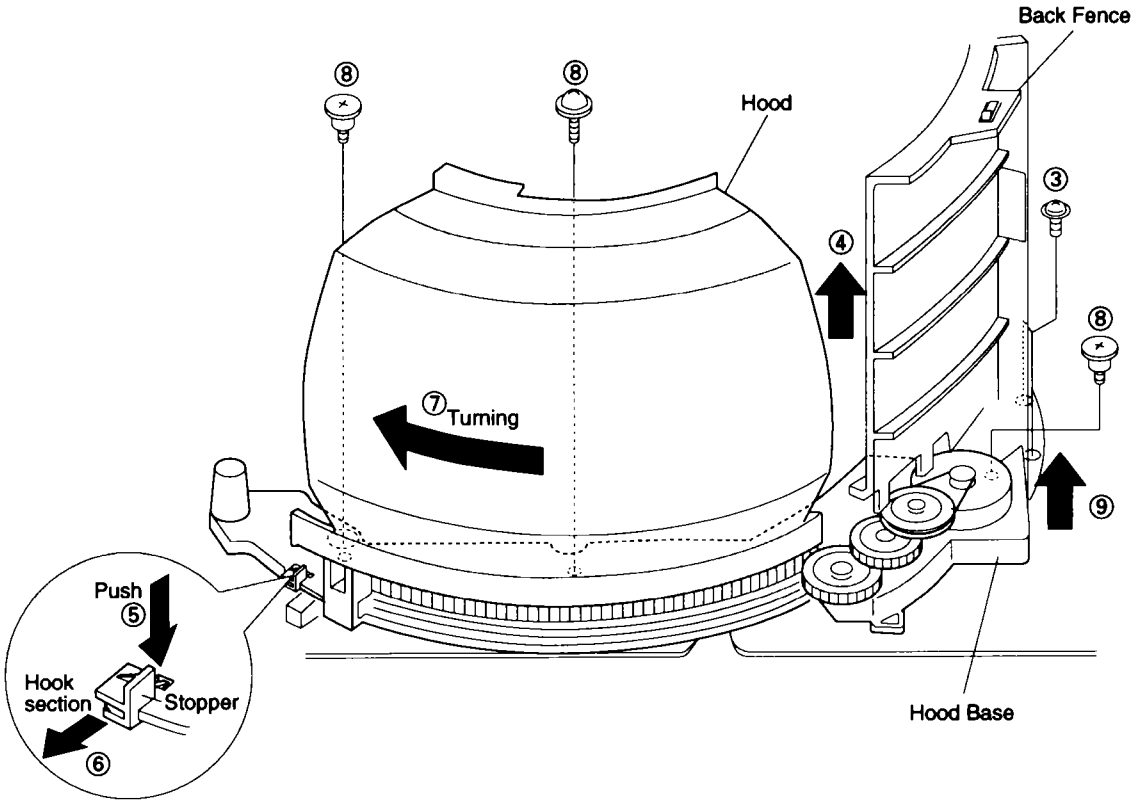
③ Remove the Screws.

④ Remove the Back Fence.

⑤-⑦ Press the hook of the Stopper of the Hood Base to remove the Stopper. Slide the Hood toward the left to remove the Hood.

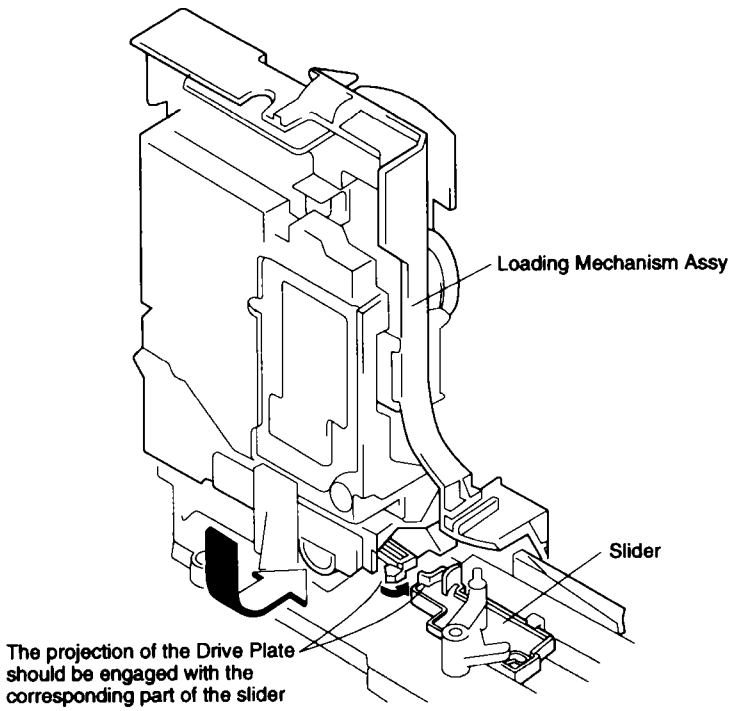
⑧ Remove the Screws.

⑨ Remove the Hood Base.



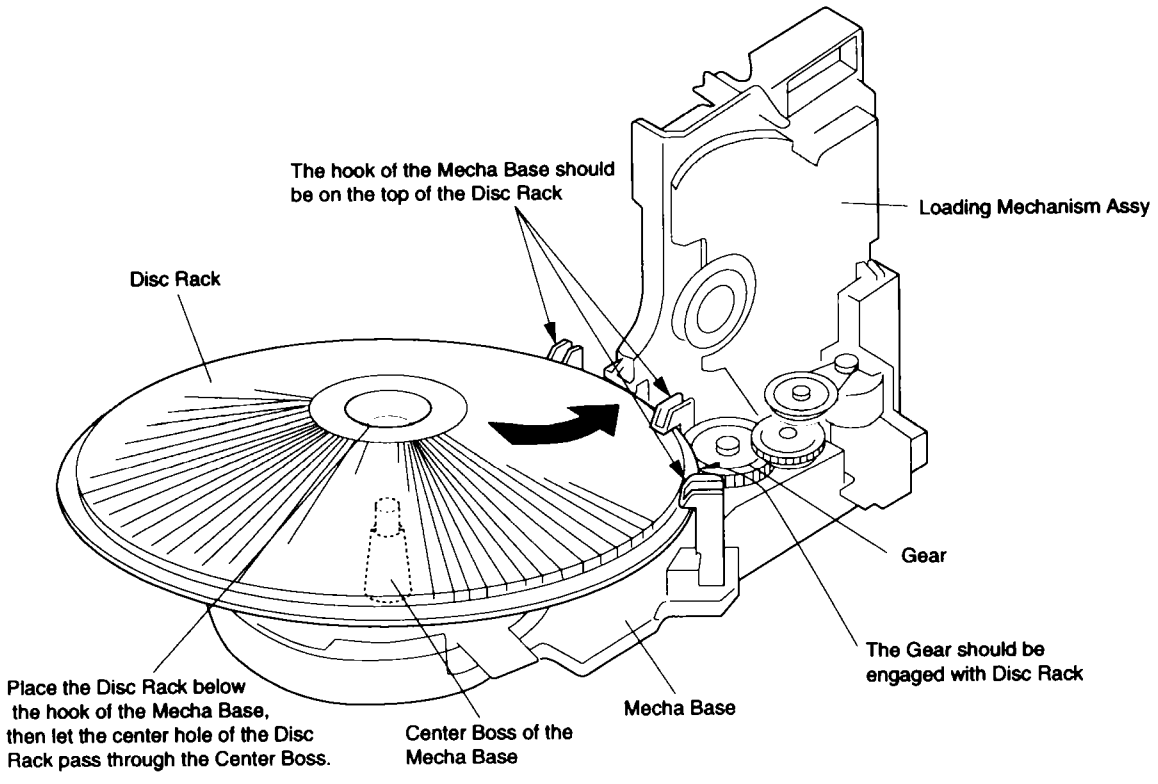
■ INSTALLING THE LOADING MECHANISM ASSY

①


Loading Mechanism Assy
Slider
The projection of the Drive Plate should be engaged with the corresponding part of the slider

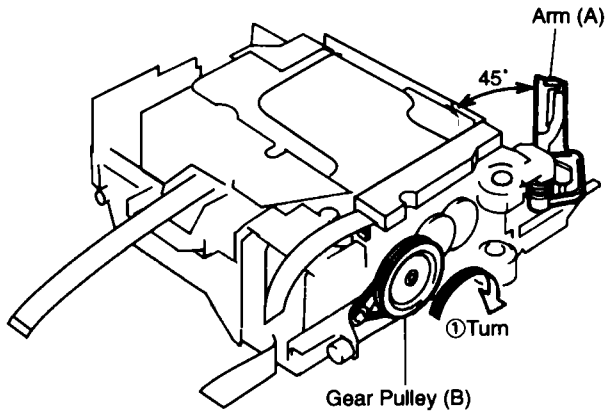
■ INSTALLING THE DISC RACK

①

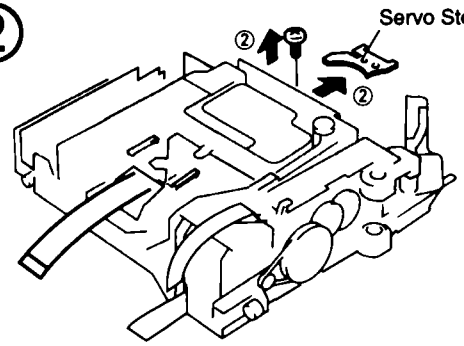

The hook of the Mecha Base should be on the top of the Disc Rack
Loading Mechanism Assy
Disc Rack
Gear
The Gear should be engaged with Disc Rack
Place the Disc Rack below the hook of the Mecha Base, then let the center hole of the Disc Rack pass through the Center Boss.
Center Boss of the Mecha Base
Mecha Base

■ REMOVING THE SERVO MECHANISM ASSY GM

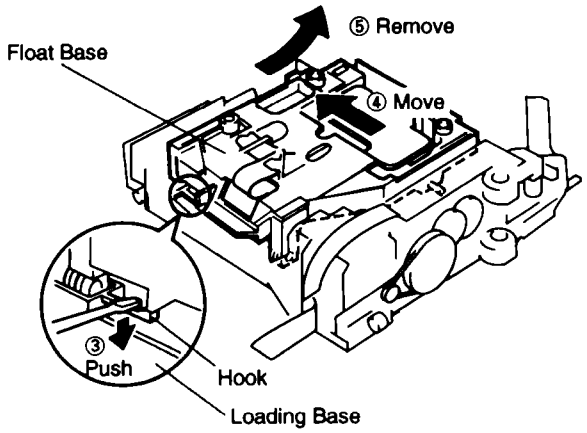
① Turn gear pulley (B) and position Arm (A) as shown below.



②

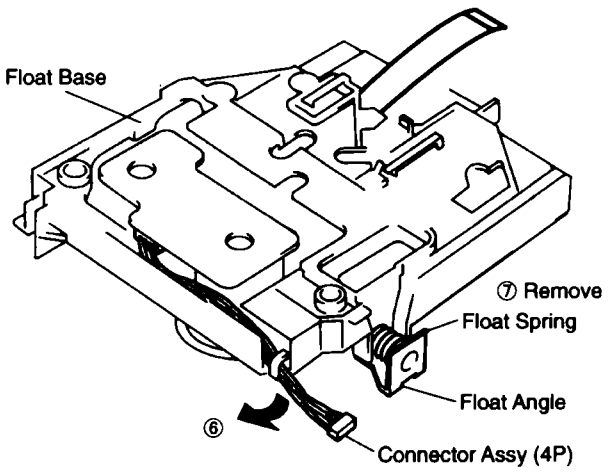


③-⑤ Slide the float base in the direction of the arrow ④ while pressing down on the loading base hook, and, lifting it gently, pull it out in the direction of the arrow ⑤.

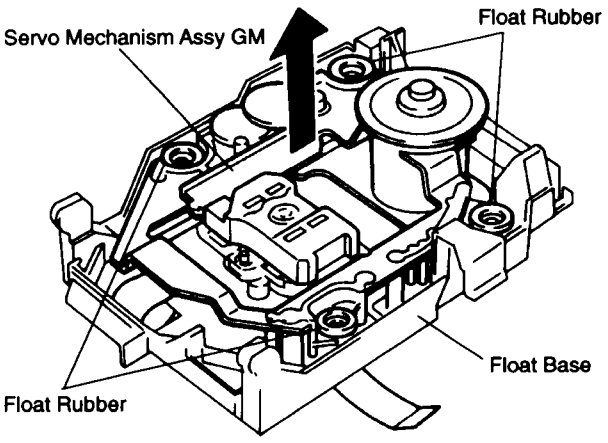


⑥ Remove the connector ASSY (4P) from the float base.

⑦ Remove the float spring. (To install this part, line up the float angle side of the Servo Mechanism ASSY GM first, and press down on the float base side.)



⑧ Remove the float rubber from the Servo Mechanism ASSY GM. At this time the float rubber should remain on the float base side. (To install it on the float base when it has been removed, push it into place with a thin cylindrical object.

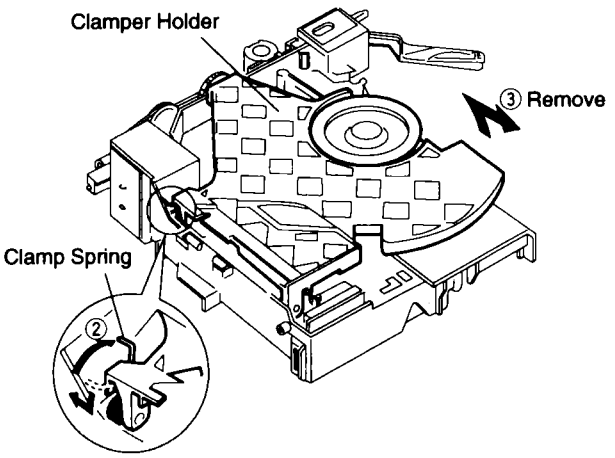


■ REMOVING THE ARM (A)

① Remove the float base together with the Servo Mechanism ASSY GM. (Refer to Steps ①–⑤ for "■ Removing the Servo Mechanism ASSY GM" .)

②-③

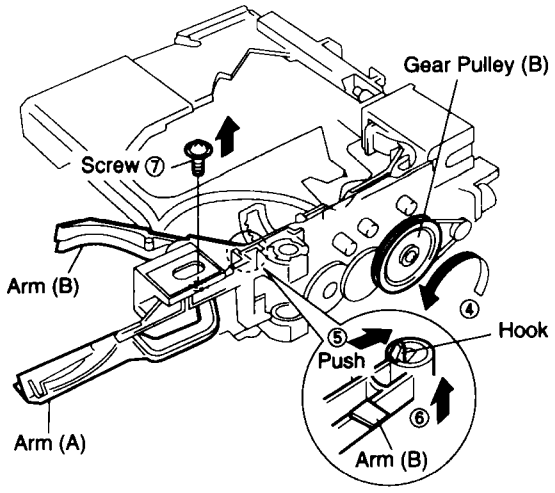
Remove the clamp spring and remove the clamper holder.



④ Turn gear pulley (B) and position Arm (A) as shown below.

⑤,⑥ Remove Arm (B) while pressing the hook in the direction of the arrow.

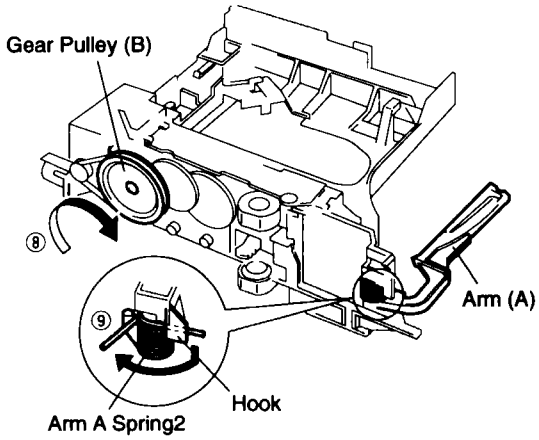
⑦ Remove screw ⑦.



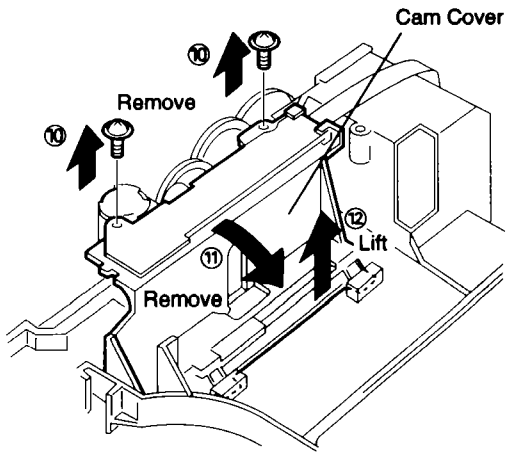
⑧ Turn gear pulley (B) and position Arm (A) as shown below.

⑨ Remove the Arm A spring2 from its hook.

Note: Do not hold the tip (blade) of arm (A) during operation.



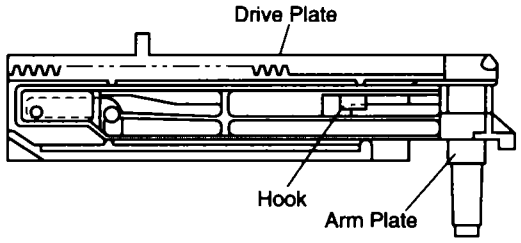
⑩-⑫



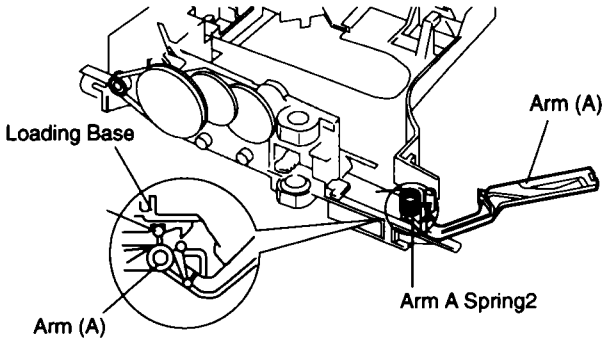
⑬ Remove drive plate, Arm plate, Arm A spring2 and Arm (A). (Refer to Steps ③-④ on page 9.)

■ FOR REASSEMBLY, REVERSE THE DISASSEMBLY PROCEDURE, AND IN ADDITION CARRY OUT THE FOLLOWING ITEMS.

① Assemble the arm plate as shown below, watching out for the drive plate hook.

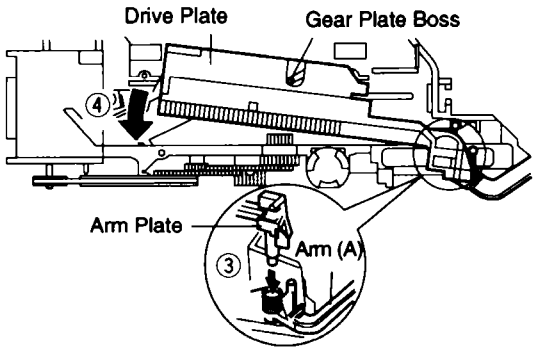


② Place Arm (A) and the Arm A spring2 on the loading base, being careful to keep them in the position shown below.

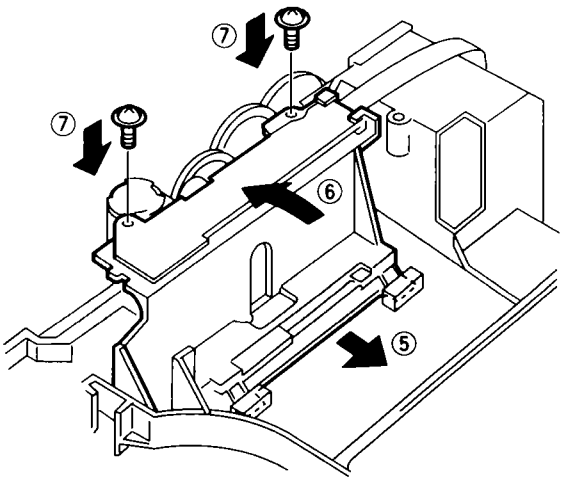


③ Set the drive plate and arm plate, which were assembled in Step ①, on the Arm (A) side as shown below. At this time be careful to keep Arm (A) in the position described in Step ②.

④ Insert the gear plate boss into the drive plate groove and pull it toward you.



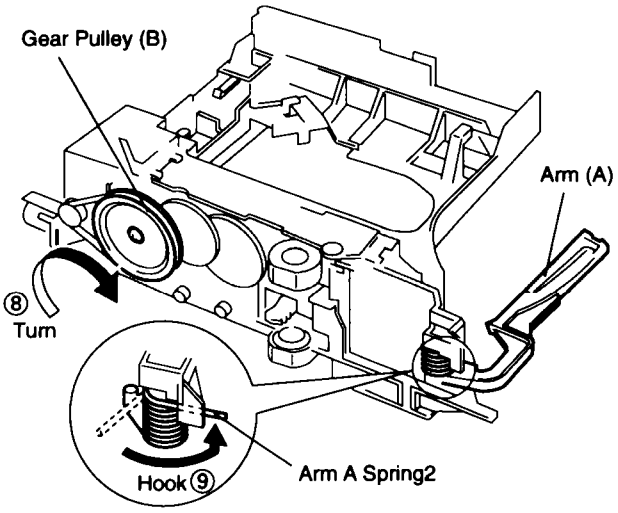
⑤-⑦



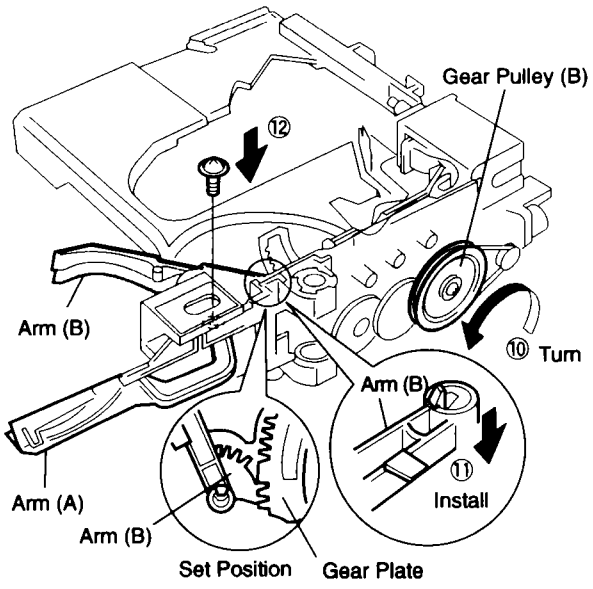
⑧ Turn gear pulley (B) and position Arm (A) as shown below.

⑨

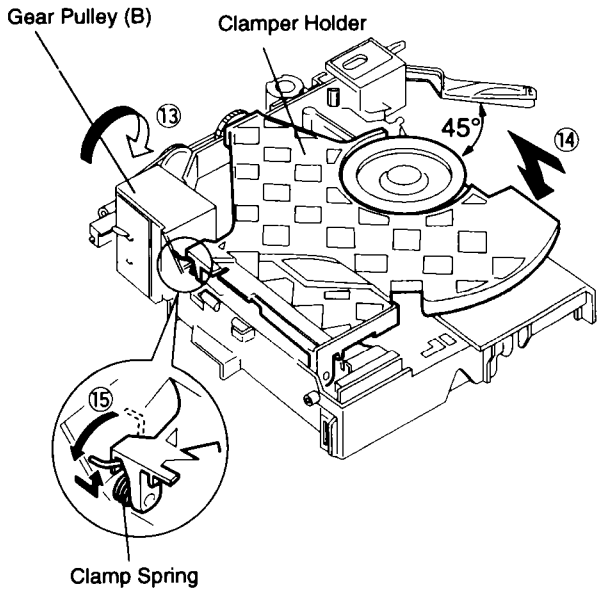
Note : Do not hold the tip (blade) of arm (A) during operation.



⑩-⑫


Gear Pulley (B)
⑫
Arm (B)
⑩ Turn
Arm (B)
⑪
Install
Arm (A)
Arm (B)
Set Position
Gear Plate

⑬-⑮


Gear Pulley (B)
Clamper Holder
⑬
45°
⑭
⑮
Clamp Spring

3. PACKING AND PARTS LIST

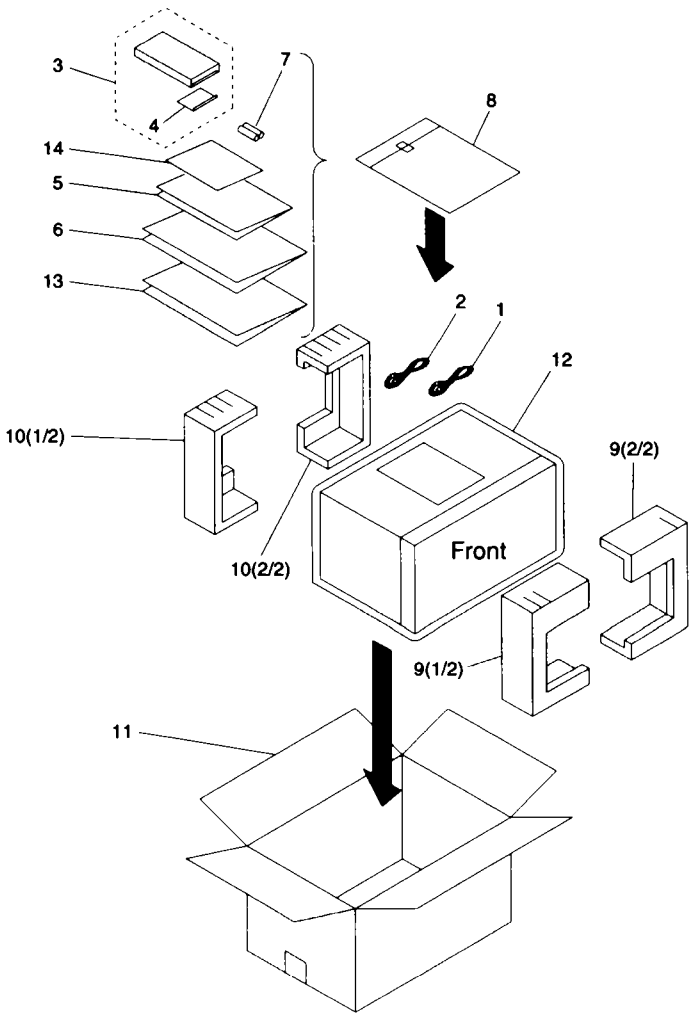
NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

PARTS LIST

Mark	No.	Description	Parts No.
	1	Cord With Mini Plug	PDE1247
	2	Cord With Plug	PDE1248
	3	Wireless Remote Control Unit	PWW1108
	4	Battery Cover	AZN2249
NSP	5	Warranty Card (KU Type)	ARY1044
NSP	5	Warranty Card (KC Type)	ARY1039
	6	Operating Instructions (English) (KU Type)	PRB1237
	6	Operating Instructions (English/French) (KC Type)	PRE1233
NSP	7	Battery (R6P, AA)	VEM – 013
	8	Polyethlene Bag	Z21 – 038
	9	Styrol Protector F	PHA1307
	10	Styrol Protector R	PHA1308
	11	Packing Case (KU Type)	PHG2183
	11	Packing Case (KC Type)	PHG2213
	12	Mirror Mat	Z23 – 020
	13	Jacket File	PHN1049
	14	Index Label	PRW1406

PACKING



4. EXPLODED VIEWS AND PARTS LIST

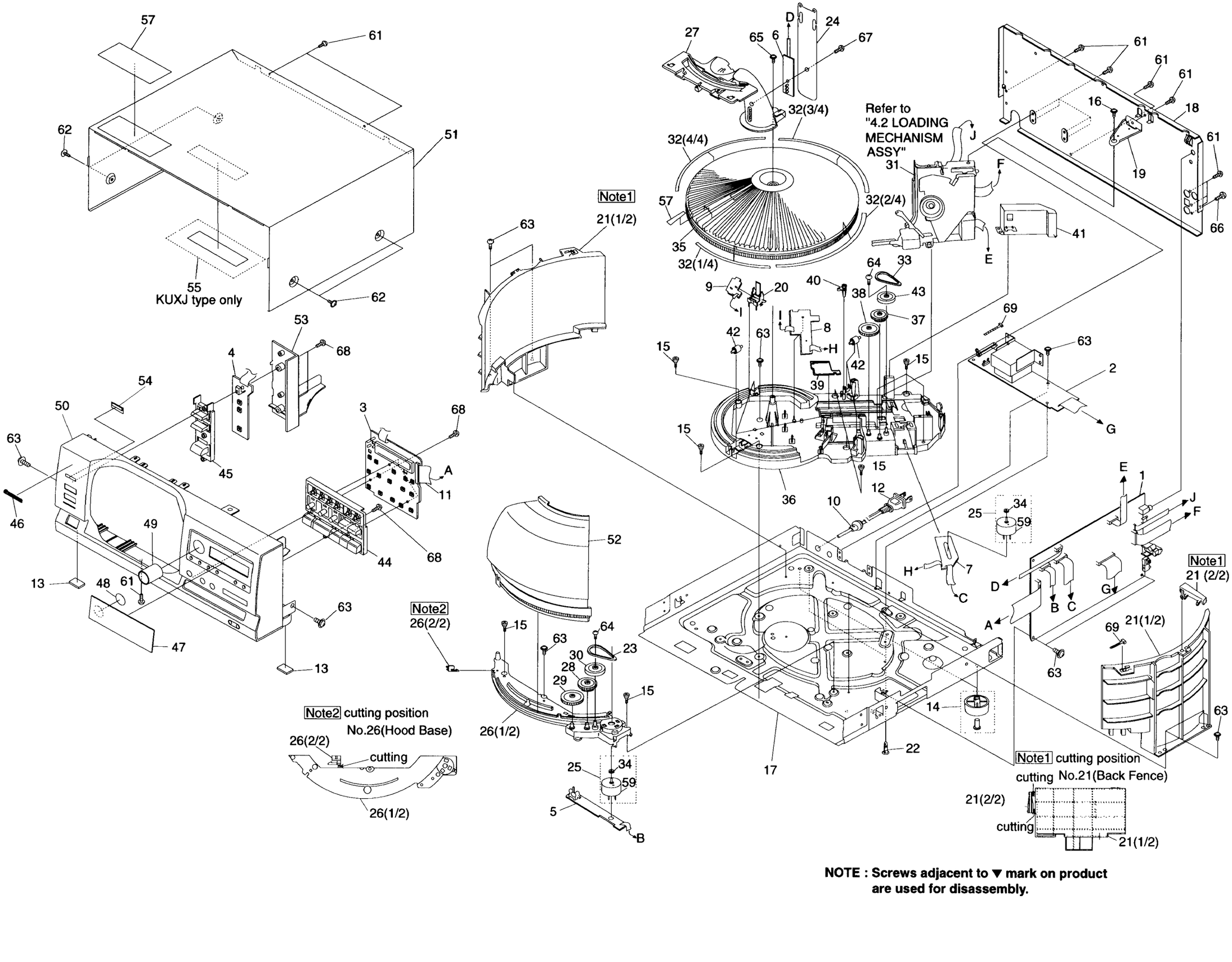
NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

4.1 EXTERIOR

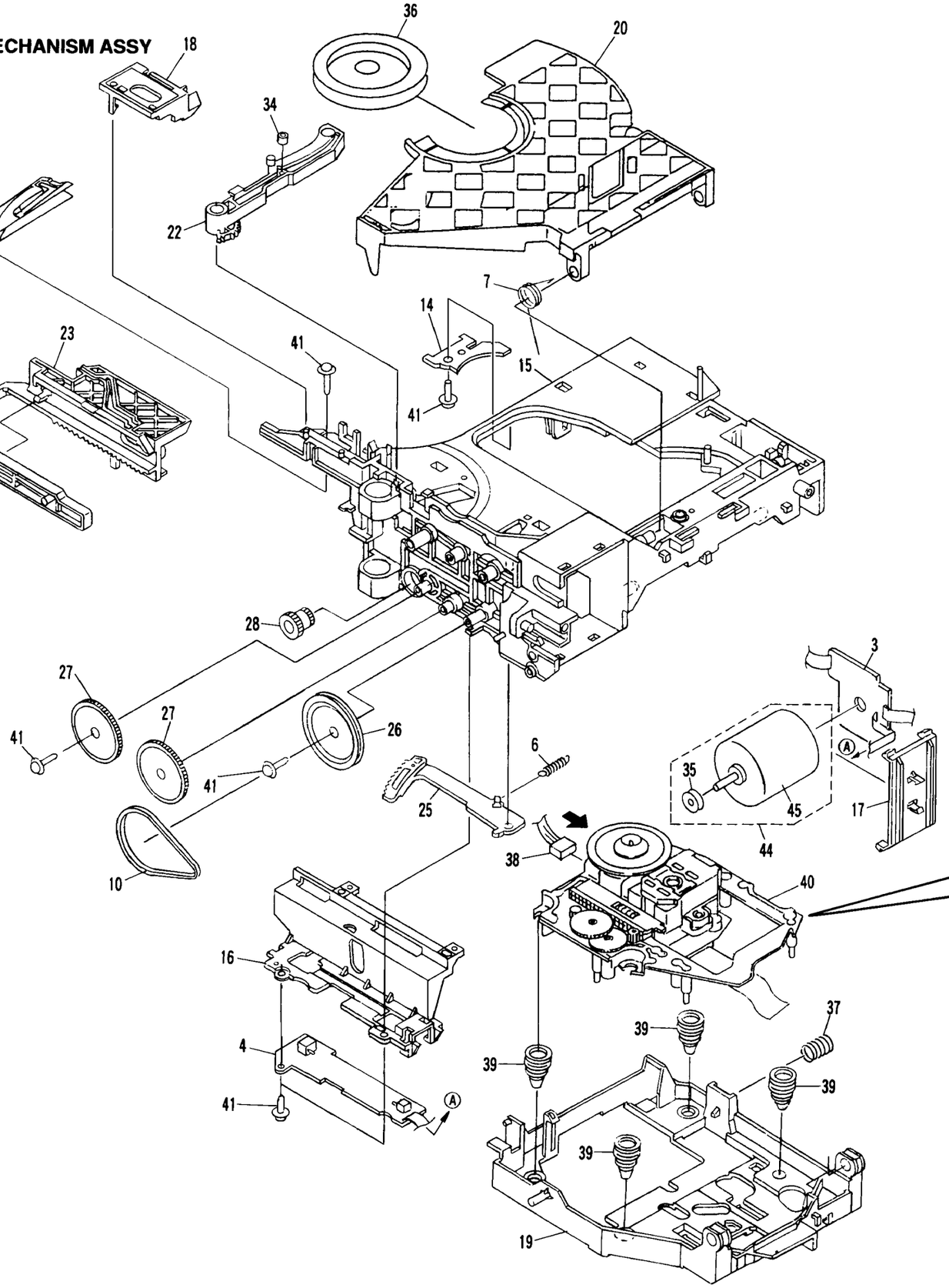
Parts List

Mark	No.	Description	Parts No.
	1	Main Board Assy	PWZ3207
	2	Power Board Assy	PWZ3221
	3	Display Board Assy	PWZ3300
NSP	4	Switch Board Assy	PWZ3305
NSP	5	Door Board Assy	PWZ3314
NSP	6	Center LED Board Assy	PWZ3316
NSP	7	Select Motor Board Assy	PWZ3324
NSP	8	Sensor Board Assy	PWZ3327
NSP	9	Rack LED Board Assy	PWZ3330
⚠	10	Cord Stopper	CM – 22C
	11	38P F.F.C/30V	PDD1169
⚠	12	AC Power Cord	PDG1015
	13	Rubber Sheet	AEB1111
	14	Foot Assy	AEC1531
	15	Screw C	PBA1106
	16	Screw	PBA1108
NSP	17	Under Base	PNA2255
	18	Rear Base	PNA2257
	19	Stopper Angle	PNB1559
	20	Holder	PNW2670
	21	Back Fence	PNW2671
NSP	22	Locking Card Spacer	VEC1596
	23	Belt	PEB1288
	24	Cover	PNM1294
	25	Motor Assy	PEA1333
	26	Hood Base	PNW2633
	27	Center Pole	PNW2634
	28	Gear	PNW2641
	29	Gear	PNW2642
	30	Gear Pulley	VNL1662
	31	Loading Mechanism Assy	PXA1578
	32	Rack Label	PAM1719
	33	Belt	PEB1288
NSP	34	Motor Pulley	PNW1634
	35	Disc Rack	PNW2632
	36	Mecha Base	PNW2639
	37	Gear	PNW2641
	38	Gear	PNW2642
	39	Slider	PNW2643
	40	Lock Lever	PNW2644
	41	Mecha Stopper	PNW2646
	42	Roller	PNW2647
	43	Gear Pulley	VNL1662
	44	Control Button	PAC1822
	45	Power Button	PAC1833
	46	Name Plate	PAM1704
	47	Display Window	PAM1712
	48	Sheet	PNM1296
	49	Reflector	PNM1297
	50	Operation Panel	PNW2636
	51	Bonnet Case	PYY1191
	52	Hood905	PNW2638
	53	Side Fence	PNW2674
	54	Sensor Acryl	VNK1566
	55	65 Label	ORW1069
	56	.....	
	57	Label	PRW1429
	58	.....	
NSP	59	Slider Motor	VXM1033
	60	.....	
	61	Screw	BBZ30P080FZK
	62	Screw	FBT40P080FZK
	63	Screw	IBZ30P060FMC
	64	Screw	IPZ20P080FMC
	65	Screw	IPZ30P080FCU
	66	Screw	PMZ30P060FZK
	67	Screw	PPZ30P050FMC
	68	Screw	PPZ30P100FMC
	69	Binder	Z09 – 056

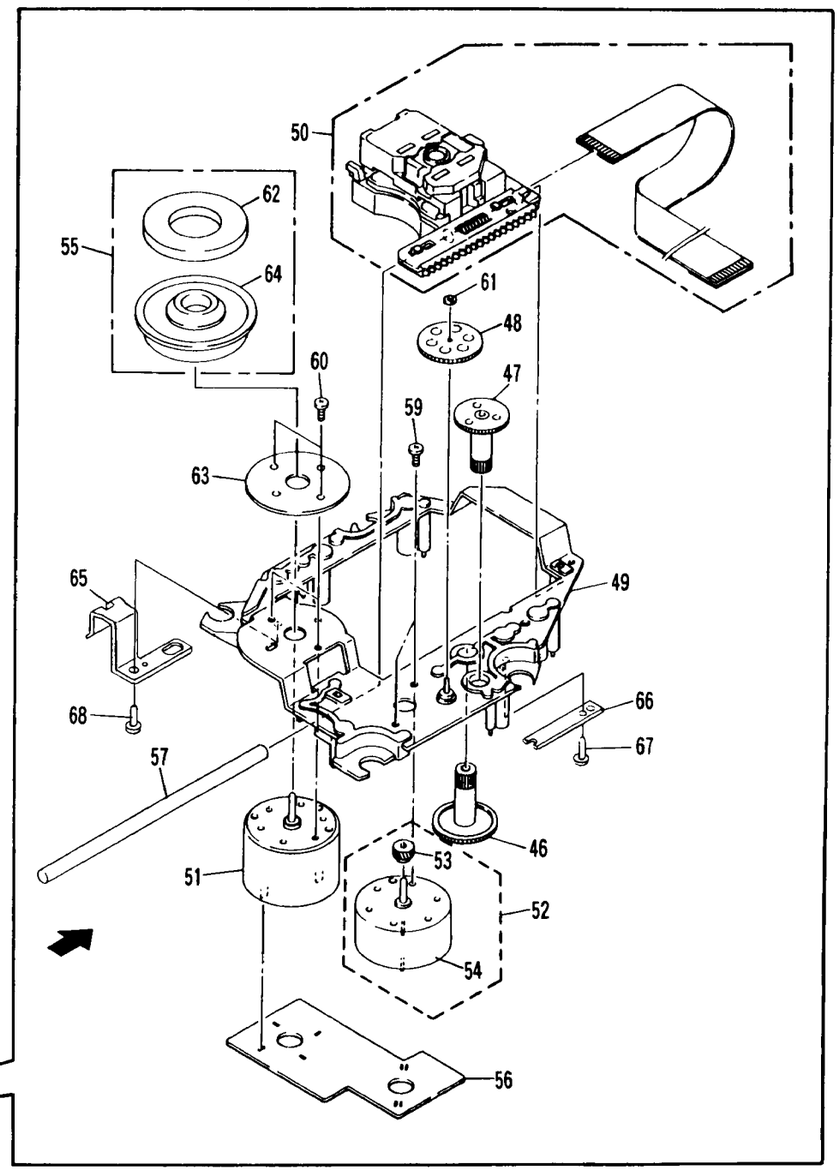


NOTE : Screws adjacent to ▼ mark on product are used for disassembly.

4.2 LOADING MECHANISM ASSY



Servo Mechanism Assy GM

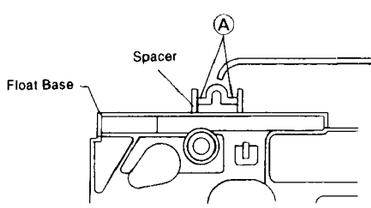


● How to install the disc table

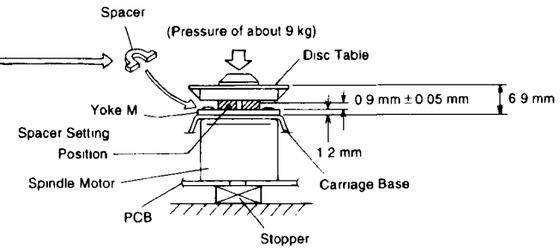
1 Use nipper or other tool to cut the two sections marked Ⓐ figure 1.
Then remove the spacer.

2 While supporting the spindle motor shaft with the stopper, put spacer on top of the yoke M, and stick the disc table on top (takes about 9kg pressure). Take off the spacer.

1



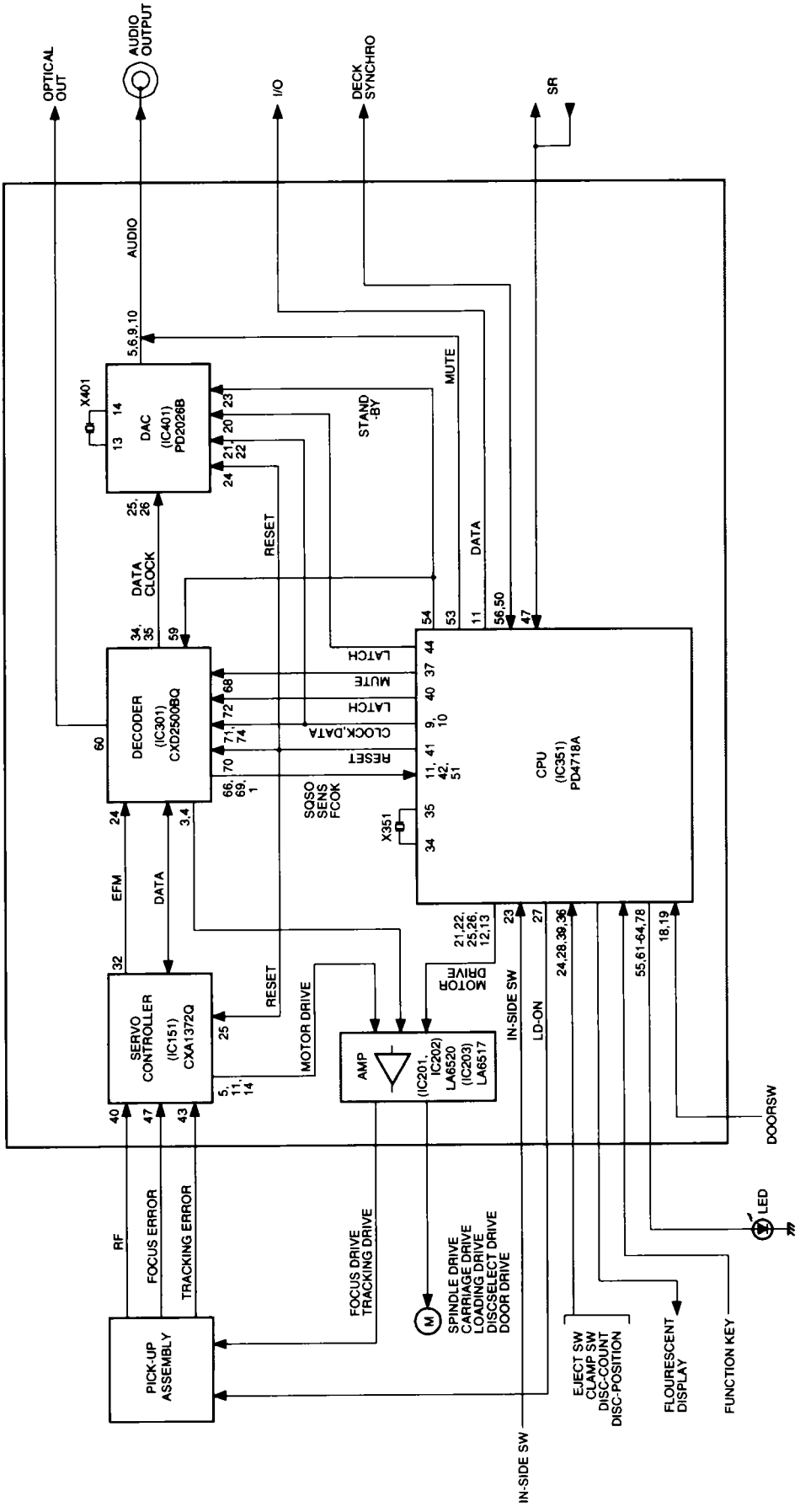
2



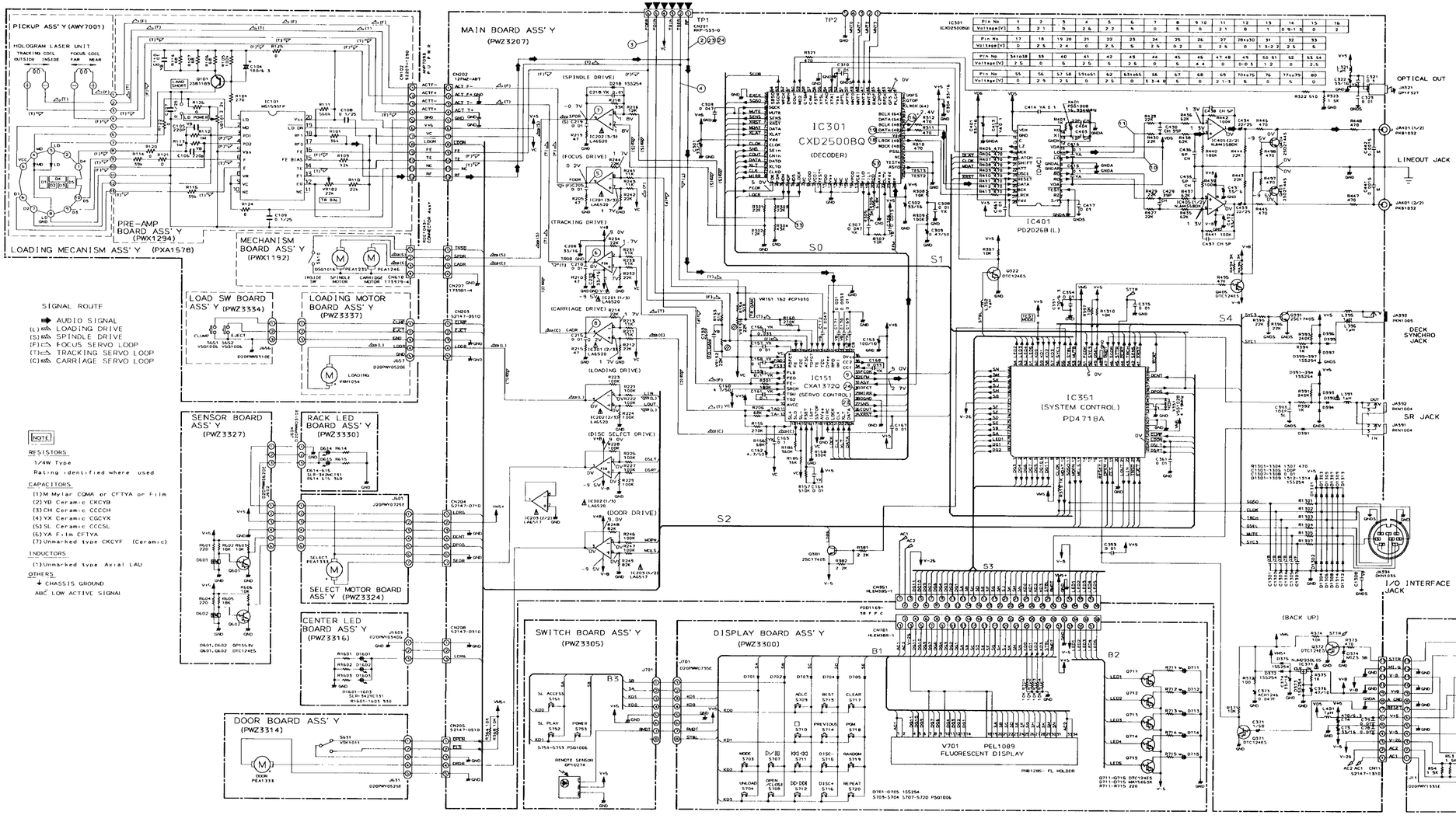
Parts List

Mark	No.	Description	Parts No.
	1	.....	
	2	.....	
NSP	3	Loading Motor Board Assy	PWZ3337
NSP	4	Load SW Board Assy	PWZ3334
	5	Arm A Spring2	ABH7124
	6	Gear Plate Spring	ABH7051
	7	Clamp Spring	ABH7107
	8	.....	
	9	.....	
	10	Loading Belt	AEB7029
	11	.....	
	12	.....	
	13	.....	
NSP	14	Servo Stopper S	ANB7047
	15	Loading Base	ANW7086
	16	Cam Cover	ANW7052
	17	Motor Holder	ANW7053
	18	Sensor Holder	ANW7054
	19	Float Base	ANW7080
	20	Clamper Holder	ANW7084
	21	Arm (A)	ANW7057
	22	Arm (B)	ANW7058
	23	Drive Plate	ANW7059
	24	Arm Plate	ANW7060
	25	Gear Plate	ANW7082
	26	Gear Pulley (B)	ANW7062
	27	Gear A	ANW7063
	28	Drive Gear	ANW7064
	29	.....	
	30	.....	
	31	.....	
	32	.....	
	33	.....	
	34	Roller B	ANW7075
	35	Motor Pulley	PNW1634
	36	Clamper	PNW2692
	37	Float Spring	ABH7049
	38	Connector Assy (4P)	RDE1043
	39	Float Rubber	AEB7028
NSP	40	Servo Mechanism Assy GM	AXA7028
	41	Screw	IPZ20P080FMC
	42	.....	
	43	.....	
	44	Motor Assy	AEA7006
	45	Loading Motor	VXM1034
	46	Gear 1	PNW2052
	47	Gear 2	PNW2053
	48	Gear 3	PNW2054
	49	Carriage Base	PNW2445
	50	Pickup Assy	AEA7004
	51	D.C. Motor Assy (SPINDLE)	PEA1235
	52	Carriage DC Motor Assy	PEA1246
	53	Pinion Gear	PNW2055
NSP	54	Carriage DC Motor/0.3W	PXM1027
	55	Disc Table Assy	PEA1314
	56	Mechanism Board Assy	PWX1192
	57	Guide Bar	PLA1094
	58	.....	
	59	Screw	JFZ17P025FZK
	60	Screw	JFZ20P040FMC
	61	Washer	WT12D032D025
	62	Clamp Magnet	PMF1014
	63	Yoke M	PNB1312
NSP	64	Disc Table	PNW2410
NSP	65	Float Angle	ANB7020
	66	Gear Stopper	PNB1303
	67	Screw	BPZ20P060FMC
	68	Screw	BPZ26P100FMC
		Froil (for Service)	GYA1001
		Ha Narl (for Service)	GEM1016

5. BLOCK DIAGRAM



6. SCHEMATIC AND PCB CONNECTION DIAGRAMS



NOTE FOR SCHEMATIC DIAGRAMS (Type 4A)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/voltage(V) unless othrewise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or μH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   ▭ or ← V:
   DC voltage (V) in PLAY mode unless otherwise noted.
   ⇦ mA or ← mA:
   DC current in PLAY mode unless otherwise noted.
   Value in ( ) is DC current in STOP mode.
7. **OTHERS:**
   • ⊘ or ⊘ : Adjusting point.
   • ◀ : Measurement point.
   • The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SCH-□ ON THE SCHEMATIC DIAGRAM:**
   • SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
9. **SWITCHES** (Underline indicates switch position):

DISPLAY BOARD ASSY

S703 : MODE	S711 : ⏮ ◀◀	S717 : CLEAR
S704 : UNLOAD	S712 : ▶▶ ⏭	S718 : PROGRAM
S707 : ▶/⏸	S713 : BEST	S719 : RANDOM
S708 : OPEN/CLOSE	S714 : PREVIOUS	S720 : REPEAT
S709 : ADLC	S715 : DISC -	
S710 : ■	S716 : DISC +	

SWITCH BOARD ASSY

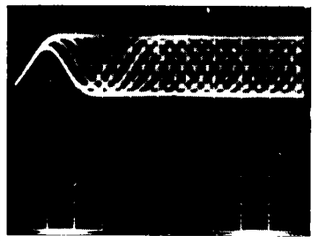
S751 : SINGLE LOADER ACCESS
S752 : SINGLE LOADER PLAY
S753 : POWER STANDBY/ON

Waveforms

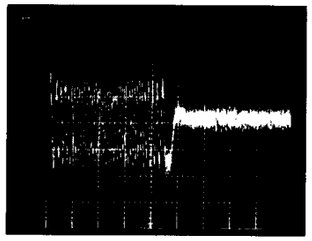
Note : The encircled numbers denote measuring points in the schematic diagram.

*1 50T-JUMP : After switching to the pause mode, press the manual search key.
*2 FOCUS-IN : Press the key without loading a disc.

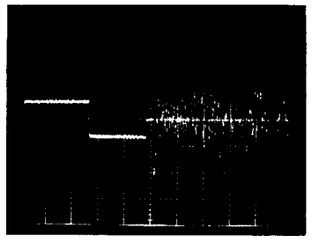
② TP1-Pin 1 · PLAY MODE (RF)
500mV/div 500nsec/div



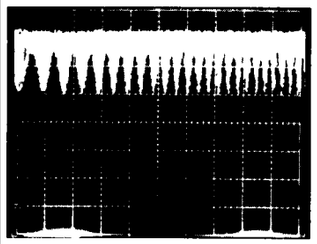
④ TP1-Pin 2 : 50T - JUMP (*1) MODE (TRER)
1V/div 1msec/div



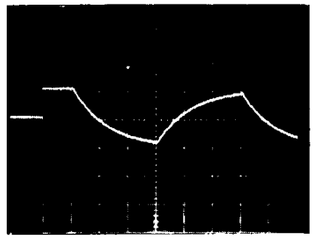
⑥ IC201-Pin 3 : 50T - JUMP (*1) MODE (TRDR)
500mV/div 1msec/div



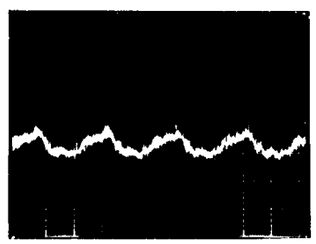
② TP1-Pin 1 : TRACK SEARCH MODE (RF)
500mV/div 200µsec/div



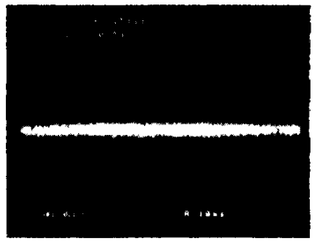
⑤ IC201-Pin 9 : FOCUS-IN(*2) MODE (FODR)
1V/div 200msec/div



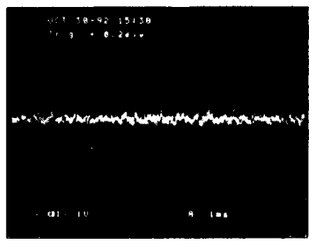
⑦ IC202-Pin 9 : PLAY MODE (SPDR)
1V/div 50msec/div



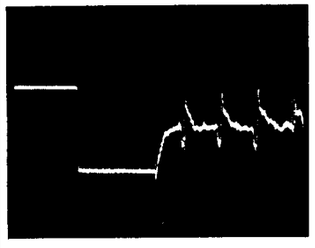
③ TP1-Pin 6 : PLAY MODE (FOER)
100mV/div 10msec/div



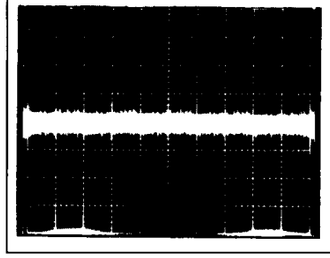
⑤ IC201-Pin 9 : PLAY MODE (FODR)
1V/div 1msec/div



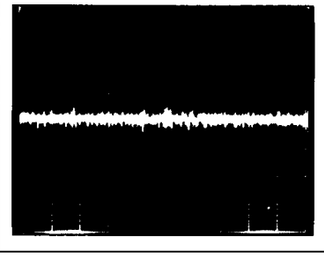
⑦ IC202-Pin 9 : TRACK SEARCH MODE (SPDR)
2V/div 50msec/div



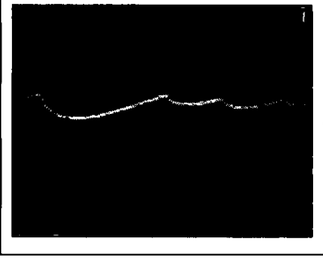
④ TP1-Pin 2 . PLAY MODE (TRER)
1V/div 1msec/div



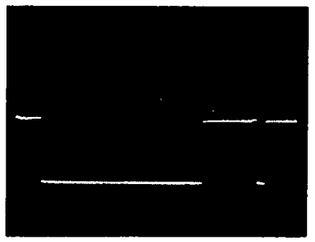
⑥ IC201-Pin 3 : PLAY MODE (TRDR)
500mV/div 1msec/div



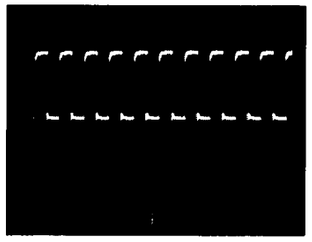
⑧ IC201-Pin 4 : PLAY MODE (CADR)
0.2V/div 2sec/div



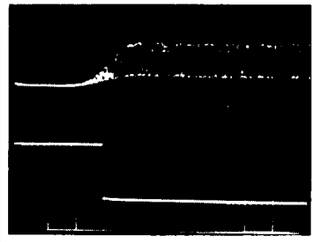
⑧ IC201-Pin 4 : TRACK SEARCH MODE (CADR)
2V/div 200msec/div



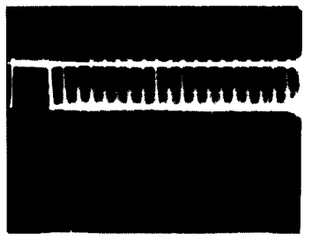
⑯ IC301-Pin 35 : PLAY MODE (1kHz) (BCLK)
2V/div 500nsec/div



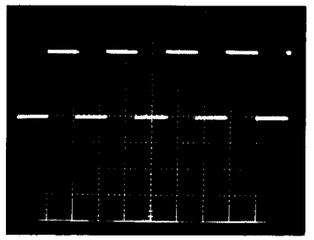
㉔ : PLAY MODE
Upper: TP1-Pin1 (RF) 1V/div
Lower: IC151-Pin30 (DFCT)
5V/div 200µsec/div



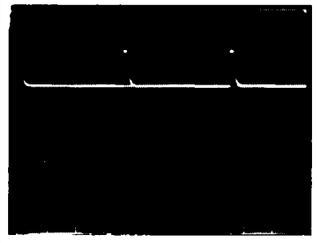
⑨ IC151-Pin 32 : PLAY MODE (EFM)
2V/div 500nsec/div



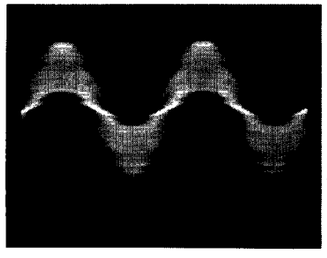
⑱ IC301-Pin 32 : PLAY MODE (1kHz) (LRCK)
2V/div 10µsec/div



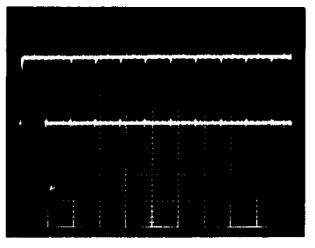
㉝ IC301-Pin 4 : PLAY MODE (MDP)
2V/div 2µsec/div



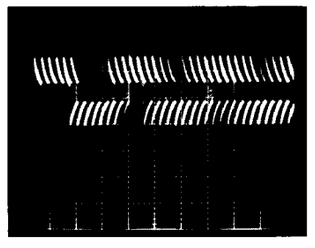
⑩ IC401-Pin 9 : PLAY MODE (1kHz) (LO) (D/A DATA OUT)
1V/div 200µsec/div



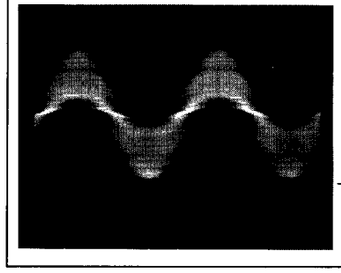
⑲ IC301-Pin 34 : PLAY MODE (1kHz) (DATA)
2V/div 500nsec/div



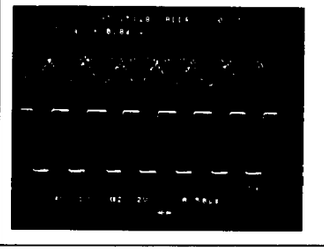
㊸ IC301-Pin 20 : PLAY MODE (PCO)
2V/div 10µsec/div

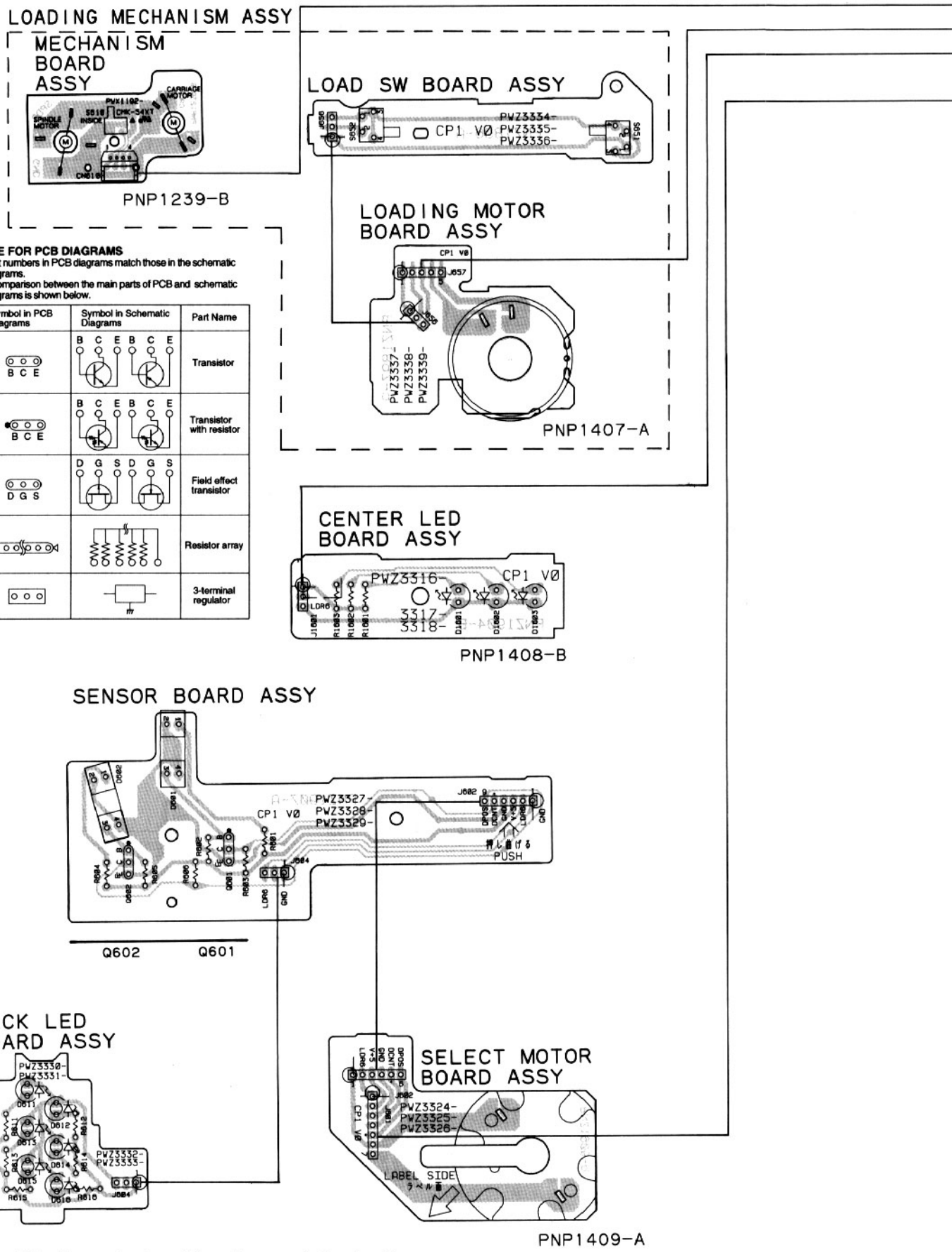


⑪ IC401-Pin 10 : PLAY MODE (1kHz) (LO) (D/A DATA OUT)
1V/div 200µsec/div



㉓ : TRACK SEARCH MODE
Upper: TP1-Pin1 (RF) 1V/div
Lower: IC151-Pin26 (C.OUT)
2V/div 50µsec/div





NOTE FOR PCB DIAGRAMS

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
		3-terminal regulator

- This diagram is viewed from the mounted parts side.
- The parts mounted on this PCB include all necessary parts for several destinations. For further information for respective destinations, be sure to check with the schematic diagram.

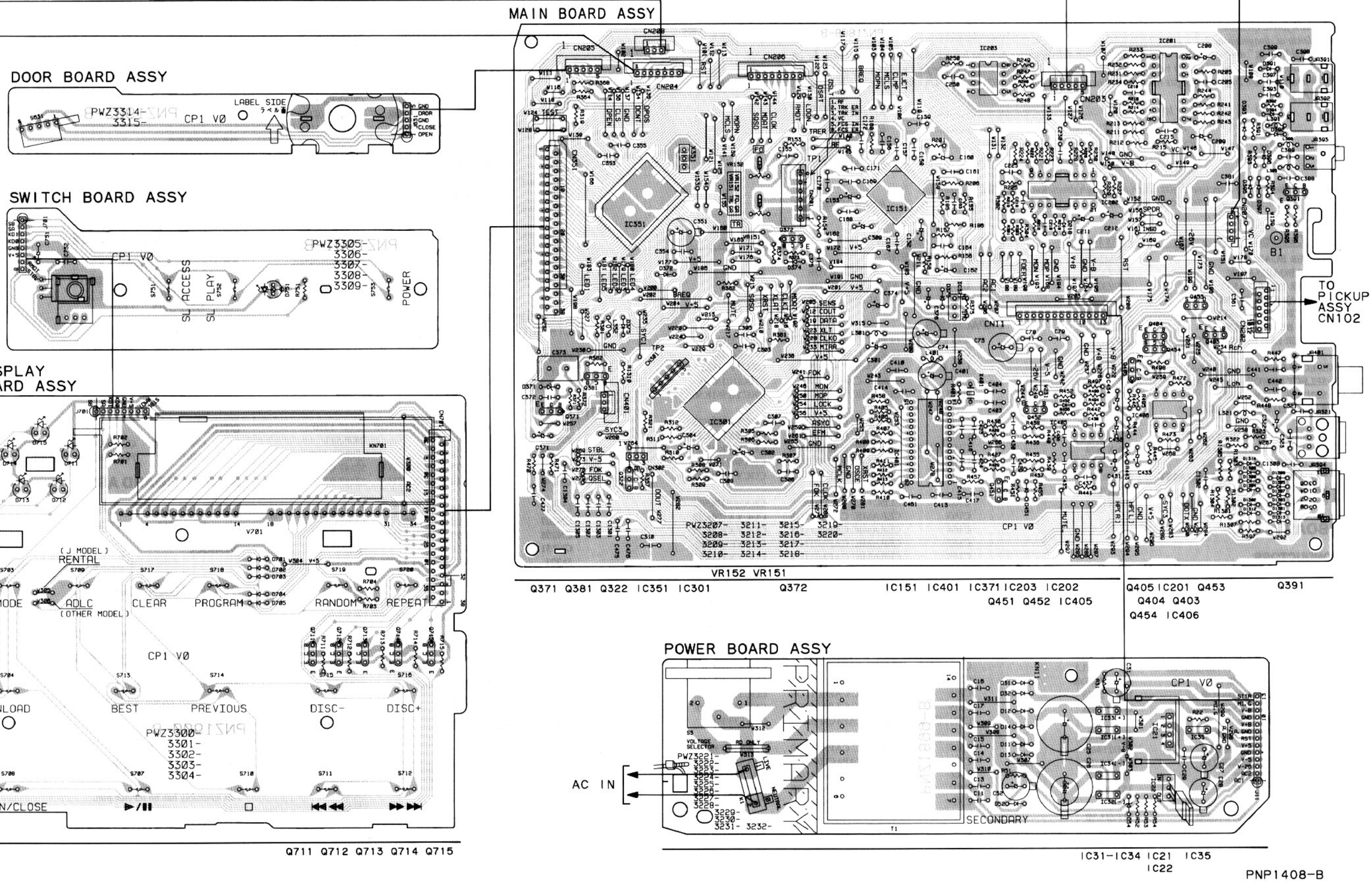
DOOR BOARD ASSY

SWITCH BOARD ASSY

DISPLAY BOARD ASSY

MAIN BOARD ASSY

POWER BOARD ASSY



- This diagram is viewed from the mounted parts side.
- The parts mounted on this PCB include all necessary parts for several destinations. For further information for respective destinations, be sure to check with the schematic diagram.

7. PCB PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	→	*56 × 10¹*	→ *561*	*RD1/4PU561J*
47kΩ	→	*47 × 10³*	→ *473*	*RD1/4PU473J*
0.5Ω	→	*0R5*		*RN2H0R5K*
1Ω	→	*1R0*		*RS1P1R0K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	→	*562 × 10¹*	→ *5621*	*RN1/4PC5621F*

Mark	No.	Description	Parts No.
NSP		MOTHER BOARD ASSY	PWM2020
		├MAIN BOARD ASSY	PWZ3207
		├POWER BOARD ASSY	PWZ3221
		├DISPLAY BOARD ASSY	PWZ3300
NSP		├SWITCH BOARD ASSY	PWZ3305
NSP		├DOOR BOARD ASSY	PWZ3314
NSP		└CENTER LED BOARD ASSY	PWZ3316
NSP		SELECT MECHA BOARD ASSY	PWX1464
NSP		├SELECT MOTOR BOARD ASSY	PWZ3324
NSP		├SENSOR BOARD ASSY	PWZ3327
NSP		└RACK LED BOARD ASSY	PWZ3330
		LOADING MECHANISM ASSY	PXA1578
NSP		├LOADING MECHA BOARD ASSY	PWX1474
NSP		├LOAD SW BOARD ASSY	PWZ3334
NSP		└LOADING MOTOR BOARD ASSY	PWZ3337
NSP		└SERVO MECHANISM ASSY	AXA7028
		└MECHANISM BOARD ASSY	PWX1192

MAIN BOARD ASSY

SEMICONDUCTORS

	IC151	SERVO IC	CXA1372Q
⚠	IC201, IC202	POWER OP-AMP IC	LA6520
⚠	IC203	POWER OP-AMP IC	LA6517
	IC301	EFM DEMODULATION IC	CXD2500BQ
	IC351	MICROCOMPUTER,IC	PD4718A
⚠	IC371	REGULATOR IC	NJM2930L05
	IC401	D/A CONVERTER IC	PD2026B(L)
	IC405	OP-AMP IC	NJM4558DX
	Q322	TRANSISTOR	DTC124ES
	Q371, Q372	TRANSISTOR	DTC124ES
	Q381, Q391	TRANSISTOR	2SC1740S
	Q403, Q404	TRANSISTOR	2SD2144S
	Q405	TRANSISTOR	DTC124ES
	D218	DIODE	1SS254
	D372, D373	DIODE	1SS254
	D374	ZENER DIODE	MTZJ3 3B
	D375	DIODE	1SS254
	D391-D397	DIODE	1SS254
	D1301-D1309	DIODE	1SS254
	D1312-D1314	DIODE	1SS254

Mark	No.	Description	Parts No.
COILS AND FILTERS			
	L321, L352	AXIAL INDUCTOR	LAU010J
	L391, L395	AXIAL INDUCTOR	LAU010J
	L396, L401	AXIAL INDUCTOR	LAU010J
CAPACITORS			
	C73	ELECT. CAPACITOR	CEAS330M16
	C74	ELECT. CAPACITOR	CEAS471M6R3
	C78, C79	CERAMIC CAPACITOR	CKCYF103Z50
	C153	ELECT. CAPACITOR	CEAS101M10
	C155	CERAMIC CAPACITOR	CKCYB561K50
	C156	CERAMIC CAPACITOR	CGCYX333K25
	C157	CERAMIC CAPACITOR	CGCYX103K25
	C158, C159	CERAMIC CAPACITOR	CGCYX104K25
	C160	ELECT. CAPACITOR	CEAS4R7M50
	C161	CERAMIC CAPACITOR	CGCYX104K25
	C162	ELECT. CAPACITOR	CEAS4R7M50
	C163	CERAMIC CAPACITOR	CGCYX104K25
	C164	CERAMIC CAPACITOR	CGCYX103K25
	C167	CERAMIC CAPACITOR	CKCYF103Z50
	C168	CERAMIC CAPACITOR	CGCYX333K25
	C169	CERAMIC CAPACITOR	CGCYX103K25
	C170	CERAMIC CAPACITOR	CKCYB332K50
	C171	CERAMIC CAPACITOR	CKCYB102K50
	C172	CERAMIC CAPACITOR	CKCYB472K50
	C205	CERAMIC CAPACITOR	CKCYF103Z50
	C208, C209	ELECT. CAPACITOR	CEAS330M16
	C210, C215	CERAMIC CAPACITOR	CKCYF103Z50
	C218	CERAMIC CAPACITOR	CGCYX103K25
	C219	CERAMIC CAPACITOR	CKCYF103Z50
	C301, C302	ELECT. CAPACITOR	CEAS330M16
	C303	CERAMIC CAPACITOR	CKCYF473Z50
	C304	ELECT. CAPACITOR	CEAS330M16
	C306	CERAMIC CAPACITOR	CKCYB152K50
	C307	CERAMIC CAPACITOR	CGCYX473K25
	C308	CERAMIC CAPACITOR	CGCYX103K25
	C309	ELECT. CAPACITOR	CEASR47M50
	C310	CERAMIC CAPACITOR	CKCYF103Z50
	C321	CERAMIC CAPACITOR	CGCYX104K25
	C322	ELECT. CAPACITOR	CEAS330M16
	C323	CERAMIC CAPACITOR	CKCYF103Z50

Mark	No.	Description	Parts No.
	C351	ELECT. CAPACITOR	CEAS471M6R3
	C353, C354	CERAMIC CAPACITOR	CKCYF103Z50
	C361	CERAMIC CAPACITOR	CKCYF103Z50
	C371	ELECT CAPACITOR	CEAS010M50
	C373	CAPACITOR (0.047F)	ACH1246
	C374	ELECT. CAPACITOR	CEAS330M16
	C375	CERAMIC CAPACITOR	CKCYF103Z50
	C376	ELECT. CAPACITOR	CEAS470M10
	C393	CERAMIC CAPACITOR	CCCSL101J50
	C401	ELECT. CAPACITOR	CEAS330M16
	C403	CERAMIC CAPACITOR	CCCCH120J50
	C404	CERAMIC CAPACITOR	CCCCH220J50
	C413-C416	AUDIO FILM CAPACITOR	CFTYA104J50
	C417	CERAMIC CAPACITOR	CKCYF103Z50
	C429, C430	CERAMIC CAPACITOR	CCCCH390J50
	C431, C432	ELECT. CAPACITOR	CEAS330M16
	C433, C434	ELECT. CAPACITOR	CEAS220M25
	C435-C438	CERAMIC CAPACITOR	CCCCH050C50
	C441, C442	MYLAR FILM CAPACITOR	CQMA152J50
	C461	CERAMIC CAPACITOR	CKCYF103Z50
	C1301-C1305	CERAMIC CAPACITOR	CKCYB101K50
	C1307, C1308	CERAMIC CAPACITOR	CKCYF103Z50
RESISTORS			
	VR151, VR152	VR (22kW, 0.1W)	PCP1030
	Other Resistors		RD1/4PU□□□J
OTHERS			
	CN11	13PJUMPER CONNECTOR	52147-1310
	CN201	CONNECTOR 6P	RKP-533
	CN202	CONNECTOR	12FMZ-ABT
	CN203	5P JUMPER CONNECTOR	52147-0510
	CN204	7P JUMPER CONNECTOR	52147-0710
	CN205	5P JUMPER CONNECTOR	52147-0510
	CN207	MT 4P CONNECTOR	173981-4
	CN208	3P JUMPER CONNECTOR	52147-0310
	CN351	CONNECTOR	HLEM38S-1
	JA321	OPTICAL OUTPUT JACK	GP1F32T
	JA391, JA392	JACK	RKN1004
	JA393	JACK	PKN1005
	JA394	8P MINI DIN CONNECTOR	DKN1035
	JA401	JACK	PKB1032
	X351	CERAMIC RESONATOR (4.19MHz)	VSS1028
	X401	XTAL RES (OSC) (16.9344MHz)	PSS1008

POWER BOARD ASSY

SEMICONDUCTORS

⚠	IC21	REGULATOR,IC	PQ05RR12
⚠	IC22	REGULATOR IC	NJM79M05FA
⚠	D11-D14	DIODE	S5688G
⚠	D31, D32, D52	DIODE	S5688G
	D54	ZENNER DIODE	MTZJ18B/C

Mark	No.	Description	Parts No.
CAPACITORS			
	C11	CERAMIC CAPACITOR	CKCYF103Z50
	C13-C17	CERAMIC CAPACITOR	CKCYF103Z50
	C25	ELECTR. CAPACITOR (6800pF/16V)	VCH1060
	C26	ELECT. CAPACITOR	CEAS222M16
	C27, C28	ELECT CAPACITOR	CEAS330M16
	C31	ELECT. CAPACITOR	CEAS330M16
	C52	ELECT. CAPACITOR	CEAS101M35
RESISTORS			
	All Resistors		RD1/4PU□□□J
OTHERS			
⚠		POWER TRANSFOMER	PTT1318
⚠		TERMINAL	RKC-061

DISPLAY BOARD ASSY

SEMICONDUCTORS

Q711-Q715	TRANSISTOR	DTC124ES
D701-D705	DIODE	1SS254
D711-D715	LED	MAY5063X

SWITCHES AND RELAYS

S703, S704	SWITCH	PSG1006
S707-S720	SWITCH	PSG1006

RESISTORS

All Resistors		RD1/4PU□□□J

OTHERS

CN701	CONNECTOR	HLEM38R-1
V701	FL INDICATOR TUBE	PEL1089

SWITCH BOARD ASSY

SWITCHES AND RELAYS

S751-S753	SWITCH	PSG1006

OTHERS

	REMOTE RECEIVER UNIT	GP1U27X

DOOR BOARD ASSY

OTHERS

	REAF SWITCH	VSK1011

CENTER LED BOARD ASSY

SEMICONDUCTORS

D1601-D1603	LED(YELLOW)	SLR-342YCT31

RESISTORS

All Resistors		RD1/4PU□□□J

SELECT MOTOR BOARD ASSY

This assembly has no service part

SENSOR BOARD ASSY

SEMICONDUCTORS

Q601, Q602	TRANSISTOR	DTC124ES
D601, D602	PHOTO INTERRUPTER	GP1S53V

Mark	No.	Description	Parts No.
RESISTORS			
	All Resistors		RD1/4PU□□□J

RACK LED BOARD ASSY

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	D614, D615	LED(GREEN)	SLR – 342MCT31
RESISTORS			
	All Resistors		RD1/4PU□□□J
OTHERS			
	J604	3P JUMPER WIRE	D20PWW0310E

LOAD SW BOARD ASSY

Mark	No.	Description	Parts No.
SWITCHES AND RELAYS			
	S651, S652	PUSH SWITCH	VSG1006
OTHERS			
	J656	3P JUMPER WIRE	D20PWW0310E

LOADING MOTOR BOARD ASSY

This assembly has no service part.

MECHANISM BOARD ASSY

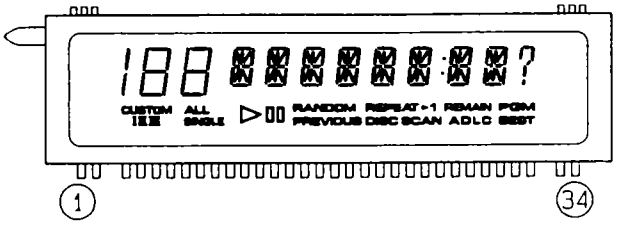
Mark	No.	Description	Parts No.
SWITCHES AND RELAYS			
	S610	PUSH SWITCH	DSG1016
OTHERS			
	CN610	4P CONNECTOR	173979 – 4

8. FL INFORMATION

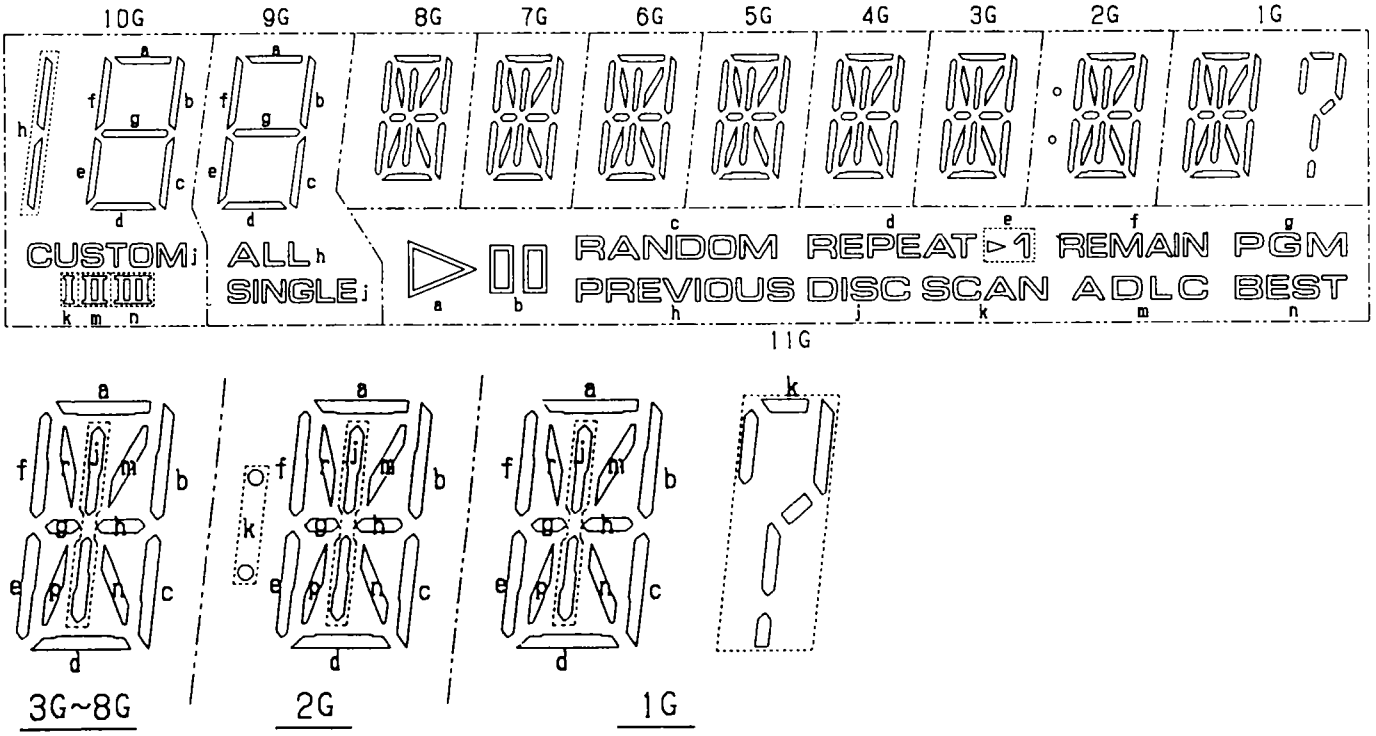
■ PEL1089 (V701 : DISPLAY BOARD ASSY)

● FL TUBE

PIN ASSIGNMENT



ANODE GRID ASSIGNMENT



PIN CONNECTION

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Connection	F	F	NP	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NL	NL	NL	p	r	a

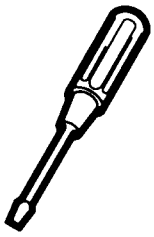
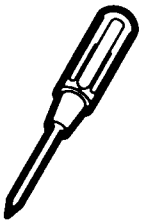
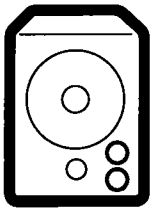
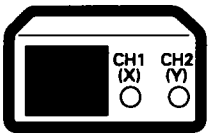
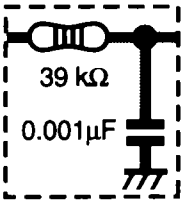
Pin No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Connection	b	c	d	e	f	g	h	j	k	m	n	NP	F	F

F:Filament 1G~11G:Grid a~h, j, k, m, n, p, r:Anode NP:No Pin NL:No Lead

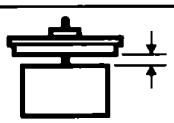
9. ADJUSTMENTS (調整方法)

9.1 PREPARATIONS (準備)

1.1 Jigs and Measuring Instruments (使用測定器/治工具類)

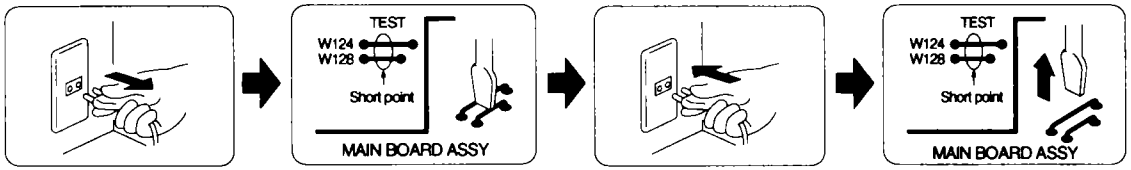
CD TEST DISC (YEDS-7)	⊖ Precise screwdriver	 ⊖ screwdriver (small)	 ⊕ screwdriver (medium)
⊕ screwdriver (large)	 Low-frequency oscillator	 Dual-trace oscilloscope (10 : 1 probe)	 Low pass filter (39 kΩ + 0.001μF)

1.2 Necessary Adjustment Points (調整に必要な項目)

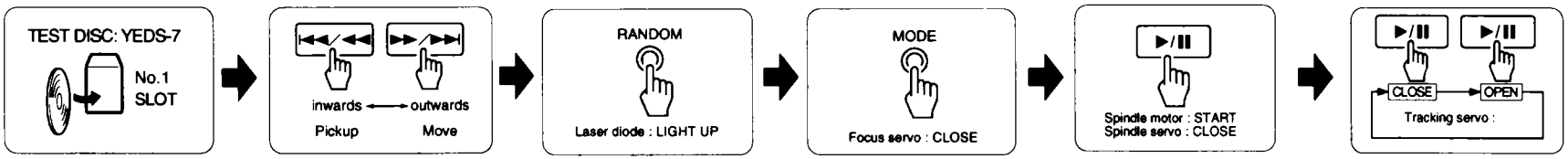
When (このような時)	Adjustment points
Exchange PICKUP (ピックアップを交換した時)	1.2.3.4.5.6. → Page 33~35
Exchange CD ASSY (CD ASSYを交換した時)	1.2.3.4.5.6. → Page 33~35
Exchange SERVO MECH ASSY (サーボメカ ASSYを交換した時)	1.2.3.4.5.6. → Page 33~35
Exchange SPINDLE MOTOR (スピンドルモーターを交換した時)	 ADJ → Page 16

1 How to Start/Cancel Test Mode （テストモ-ドの設定/解除）

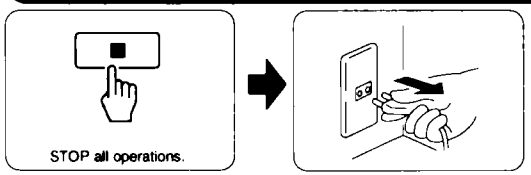
TEST MODE: ON



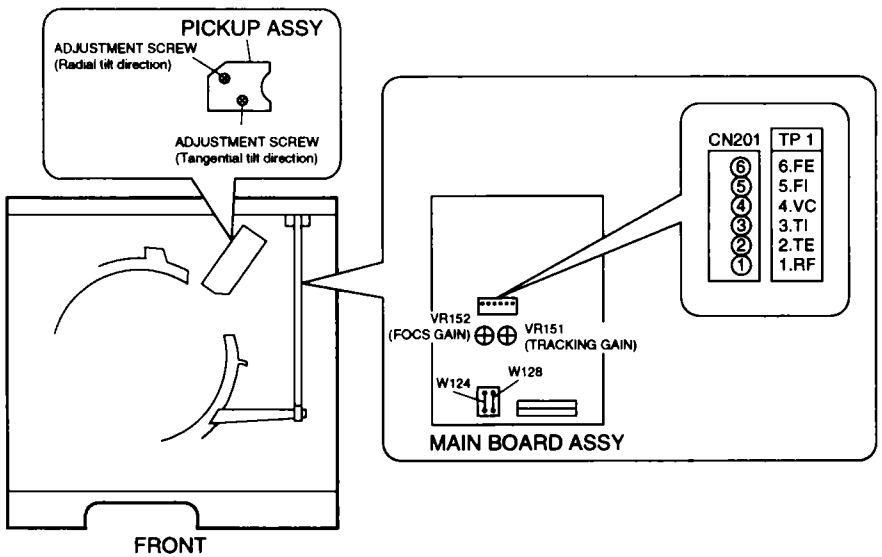
TEST MODE: PLAY



TEST MODE: STOP → CANCEL

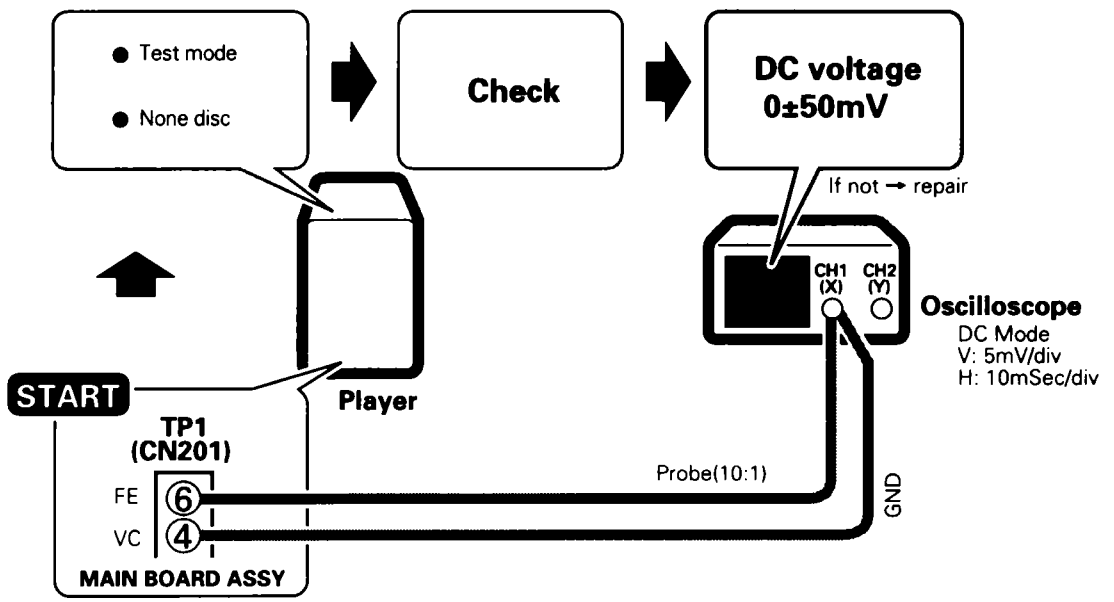


2 Adjustment Locations（テストポイントと調整用VRの位置）

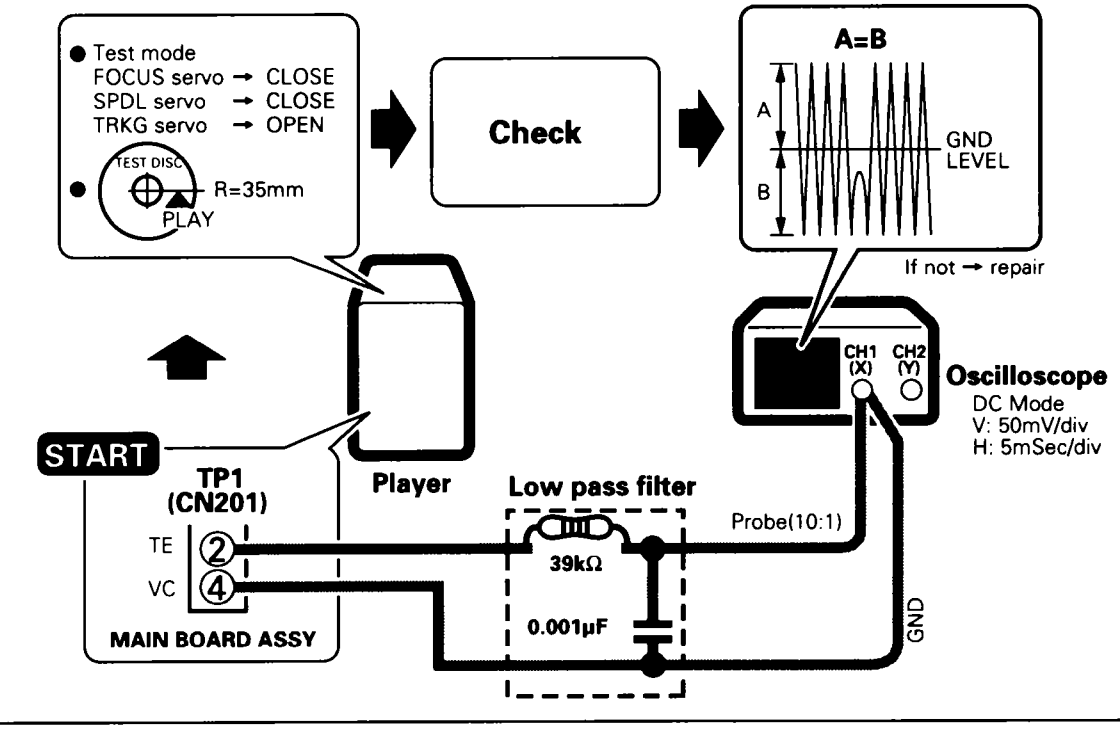


9.3 Check and Adjustment (確認、調整)

1. Focus Offset Check
(フォーカスオフセット確認)

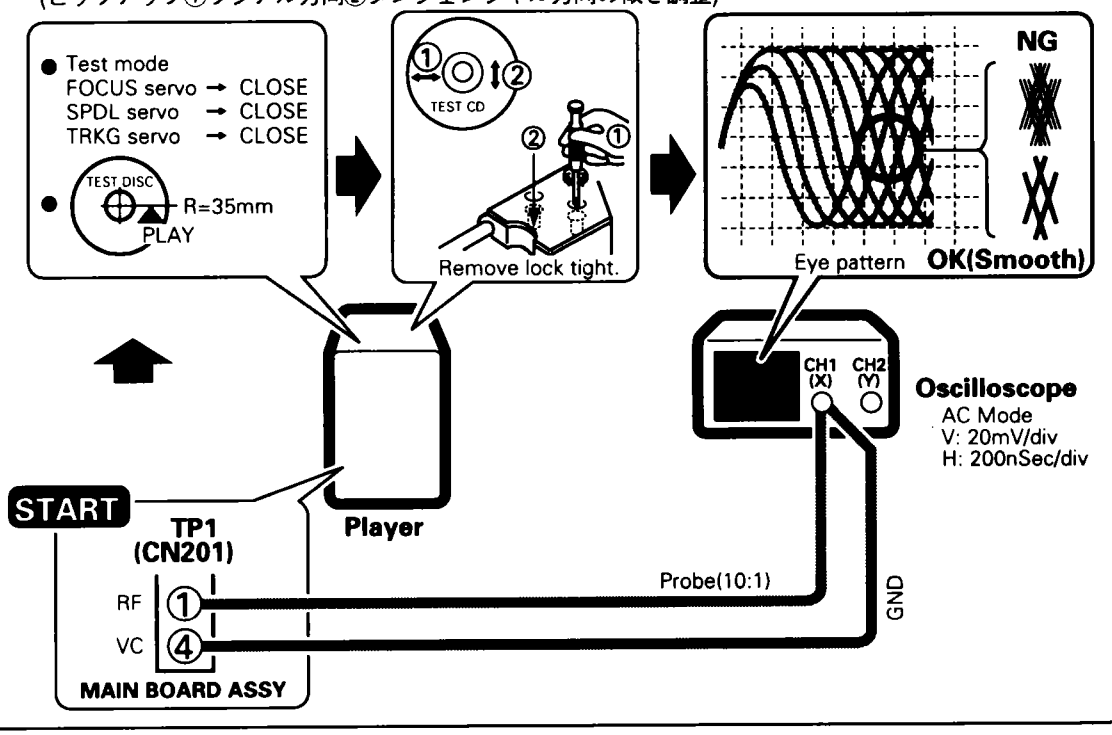


2. Tracking Error Balance Check
(トラッキングエラーバランス確認)



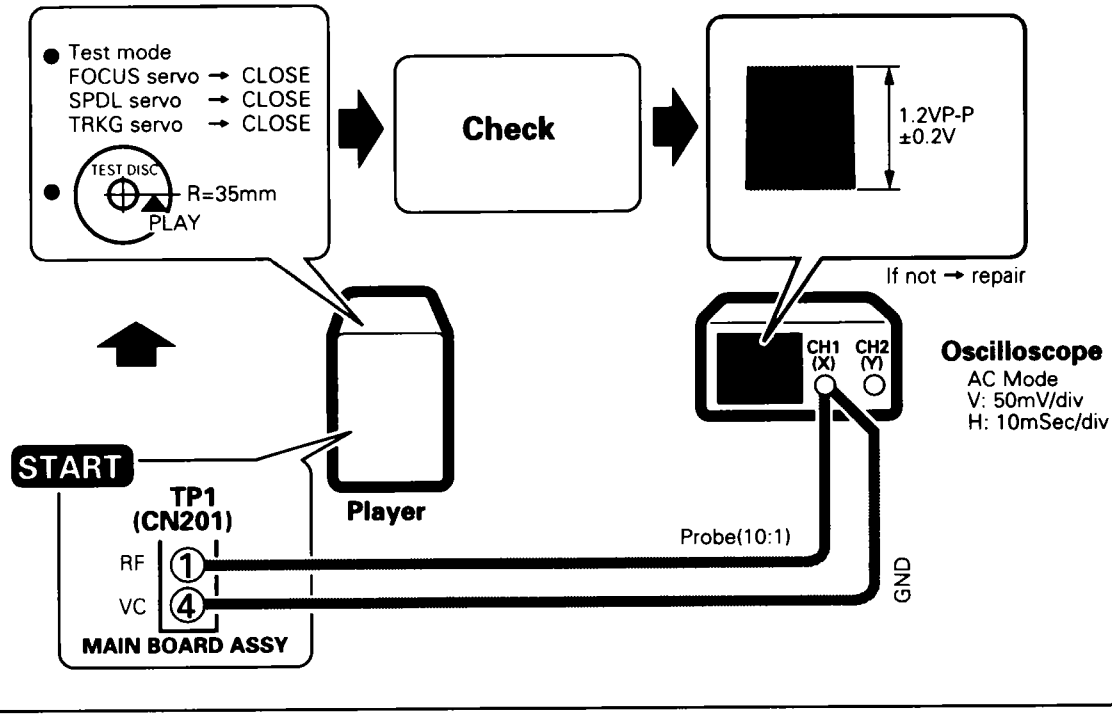
3. PICKUP ①RADIAL / ②TANGENTIAL DIRECTION TILT ADJUSTMENT

(ピックアップ①ラジアル方向②タンジェンシャル方向の傾き調整)

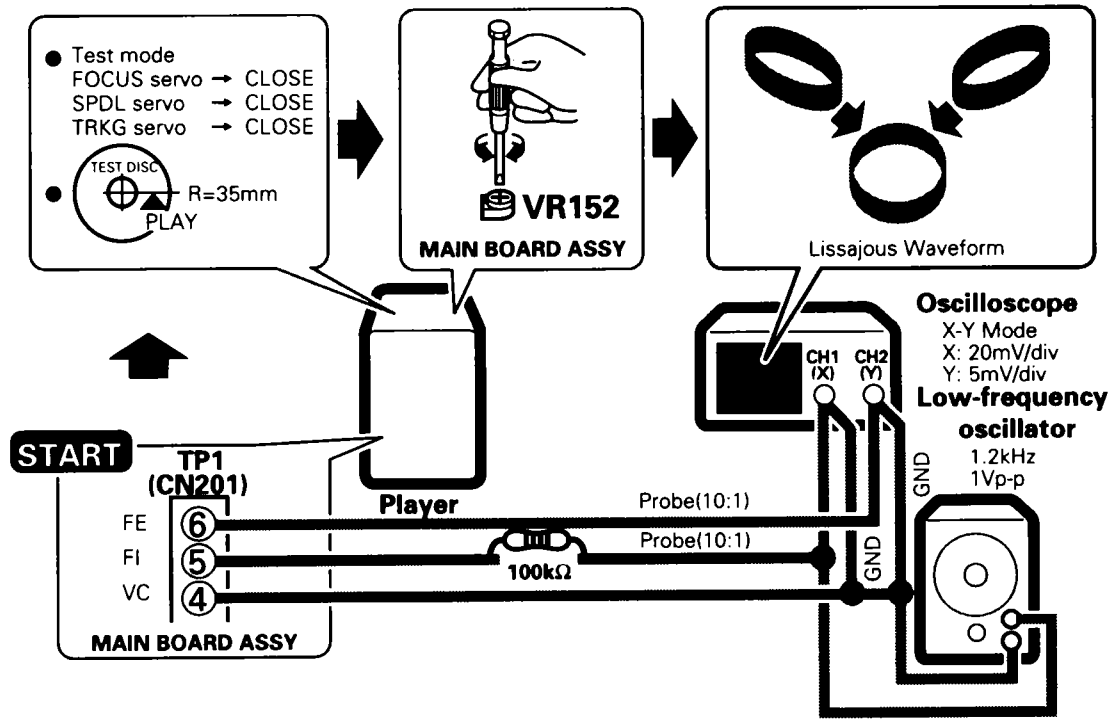


4. RF LEVEL CHECK

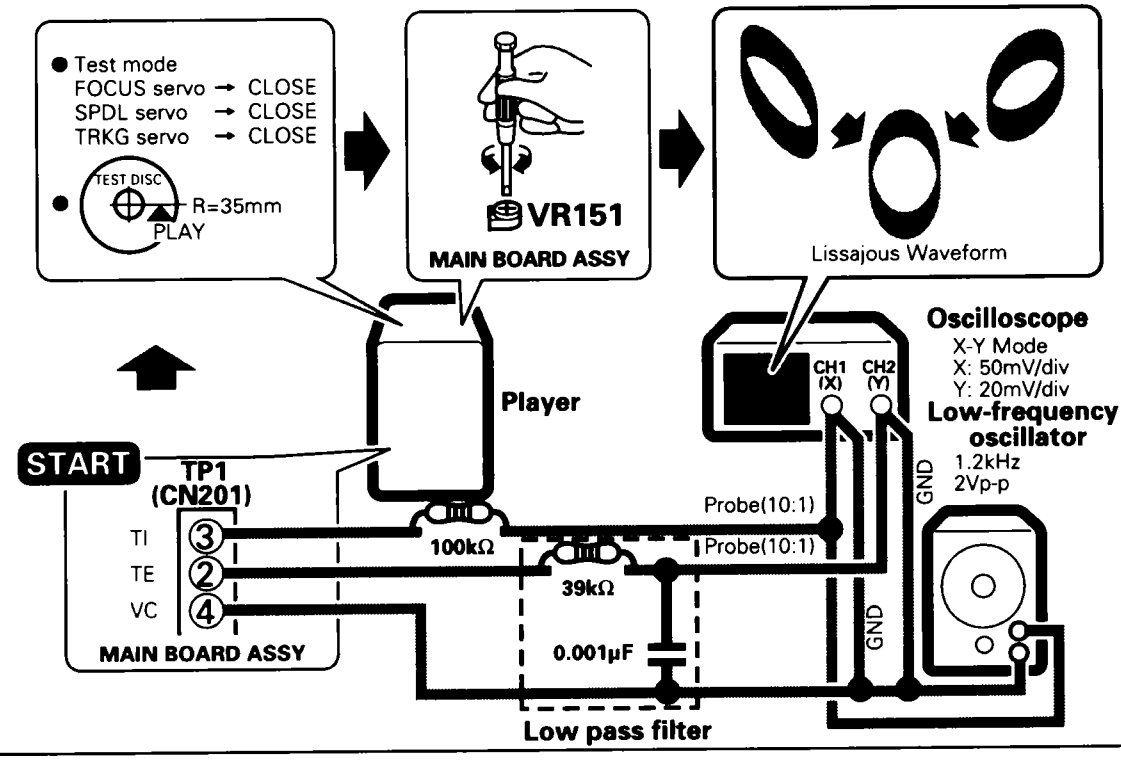
(RFレベル確認)



5. Focus Servo Loop Gain Adjustment
(フォーカスサーボループゲイン調整)



6. Tracking Servo Loop Gain Adjustment
(トラッキングサーボループゲイン調整)



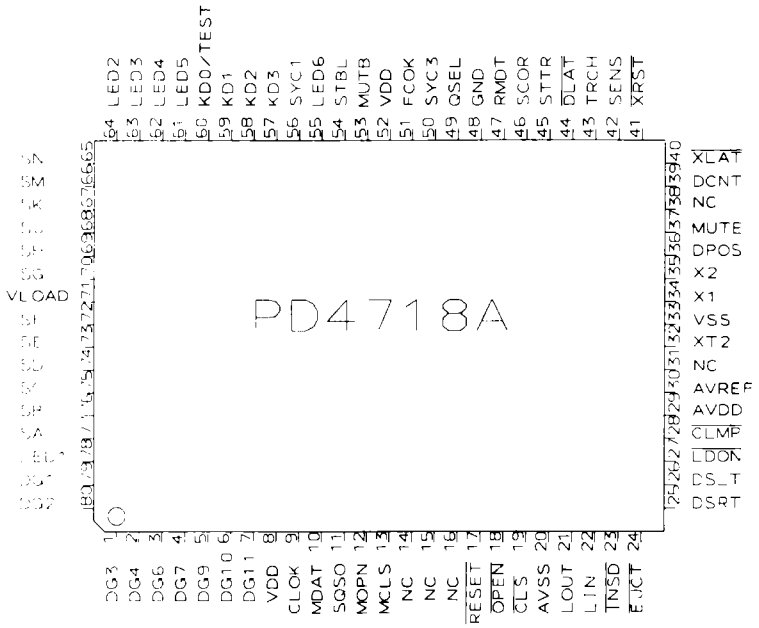
10. IC INFORMATION

■ PD4718A (IC351 : MAIN BOARD ASSY)

● SYSTEM CONTROL μ COM

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

● Pin Assignment (Top view)



Pin Function

PD4718A

No.	Pin name	I/O	Function
1	DG3	O	FL driving DIGIT output.
2	DG4	O	
3	DG6	O	
4	DG7	O	
5	DG9	O	
6	DG10	O	
7	DG11	O	
8	VDD	+5V	+5V
9	CLOK	O	Serial clock.
10	MDAT	O	LSI control data serial output.
11	SQSO	I	Subcode Q data serial input.
12	MOPN	O	Door motor output. Open (MOPN : H, MCLS : L) Close (MOPN : L, MCLS : H) Stop (MOPN : L, MCLS : L)
13	MCLS	O	
14	NC	O	Not used. (OPEN) output : L
15	NC	O	Not used. (OPEN) output : L
16	NC	O	Not used. (OPEN) output : L
17	$\overline{\text{RESET}}$	I	CPU Reset. (L : Reset)
18	$\overline{\text{OPEN}}$	I	Door open/close SW input. Open ($\overline{\text{CLS}}$: H, $\overline{\text{OPEN}}$: L) Close ($\overline{\text{CLS}}$: L, $\overline{\text{OPEN}}$: H)
19	$\overline{\text{CLS}}$	I	
20	AVSS	GND	GND
21	LOUT	O	Output for loading motor. IN (LIN : H, LOUT : L) OUT (LIN : L, LOUT : H) Stop (LIN : L, LOUT : L)
22	LIN	O	
23	$\overline{\text{INSD}}$	I	Slider INSIDE SW input. (L : INSIDE)
24	$\overline{\text{EJCT}}$	I	Loading out SW input. (L : Loading out end)

PD4718A

No.	Pin name	I/O	Function
25	DSRT	O	Selector output. Count down (DSRT : H, DSLT : L) Count up (DSRT : L, DSLT : H) Stop (DSRT : L, DSLT : L)
26	DSLT	O	
27	$\overline{\text{LDON}}$	O	Laser diode output. (L : ON, H ; OFF)
28	$\overline{\text{CLMP}}$	I	Clamp SW. (L : Clamped)
29	AVDD	+5V	+5V
30	AVREF	GND	GND
31	NC	I	GND
32	XT2	–	NC (Open)
33	VSS	GND	GND
34	X1	–	Crystal connection for system clock oscillation : 4.19MHz
35	X2	–	
36	DPOS	I	Photo sensor input for disc position detection.
37	MUTE	O	Muting output. (H : MUTE)
38	NC	O	Not used. (OPEN) output : L
39	DCNT	I	Disc count pulse input.
40	$\overline{\text{XLAT}}$	O	LSI control data lutch pulse.
41	$\overline{\text{XRST}}$	O	Reset input for each LSI
42	SENS	I	LSI operating state multi-mode input. (Including GFS input [H : OK])
43	TRCH	O	Data sirial output for expansion.
44	$\overline{\text{DLAT}}$	O	DAC control data lutch pulse output.
45	STTR	I	Trigger input for stand-by (During normal operation : L)
46	SCOR	I	Subcode sync S0 + S1 input.
47	RMDT	I	Remote control data input.
48	GND	GND	GND
49	QSEL	O	Signal output for QDATA determination (H : During output of QDATA)
50	SYC3	O	Synchronous output. (Pull-up required)
51	FCOK	I	Focus OK input. (H : OK)
52	VDD	+5V	+5V
53	MUTB	O	Muting output. (L : Mute)
54	STBL	O	Output for STANDBY-LED/$\overline{\text{OSCE}}$.
55	LED6	O	Output for LED6.
56	SYC1	I	Synchronous input. (Pull-up required)
57	KD3	I	Key data input.
58	KD2	I	
59	KD1	I	
60	KD0/TEST	I	Key data input/TEST mode request input. (H : TEST, L : Normal mode)
61	LED5	O	Output for LED5.
62	LED4	O	Output for LED4.
63	LED3	O	Output for LED3.
64	LED2	O	Output for LED2.
65	SEG N	O	
66	SEG M	O	
67	SEG K	O	FL driving segment output.
68	SEG J	O	
69	SEG H	O	
70	SEG G	O	

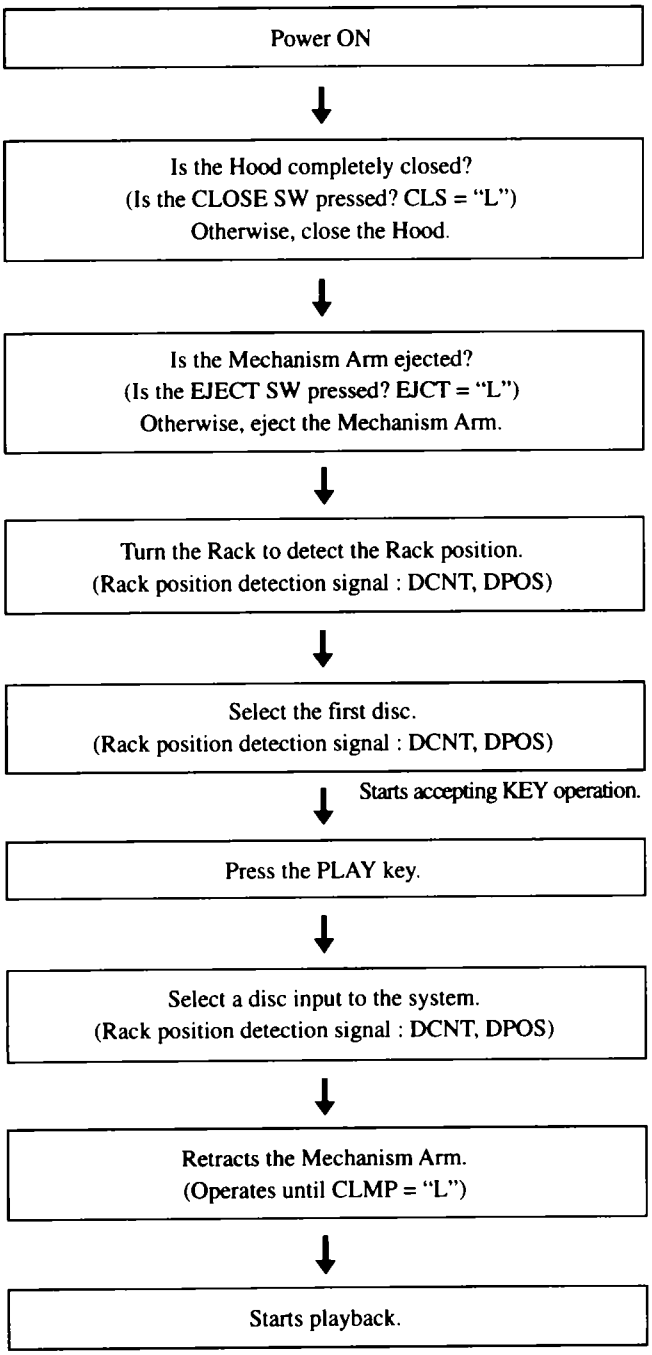
PD4718A

No.	Pin name	I/O	Function
71	VLOAD	-26V	-26V
72	SEG F	O	FL driving segment output.
73	SEG E	O	
74	SEG D	O	
75	SEG C	O	
76	SEG B	O	
77	SEG A	O	
78	LED1	O	Output for LED1.
79	DG1	O	FL driving DIGIT output.
80	DG2	O	

NOTE) H : High level, L : level, – : High IMP.

11. FLOW CHART

Flow chart of operation when the power is ON.


Power ON
Is the Hood completely closed?
(Is the CLOSE SW pressed? CLS = "L")
Otherwise, close the Hood.
Is the Mechanism Arm ejected?
(Is the EJECT SW pressed? EJCT = "L")
Otherwise, eject the Mechanism Arm.
Turn the Rack to detect the Rack position.
(Rack position detection signal : DCNT, DPOS)
Select the first disc.
(Rack position detection signal : DCNT, DPOS)
Starts accepting KEY operation.
Press the PLAY key.
Select a disc input to the system.
(Rack position detection signal : DCNT, DPOS)
Retracts the Mechanism Arm.
(Operates until CLMP = "L")
Starts playback.

12. ERROR CODE DISPLAY

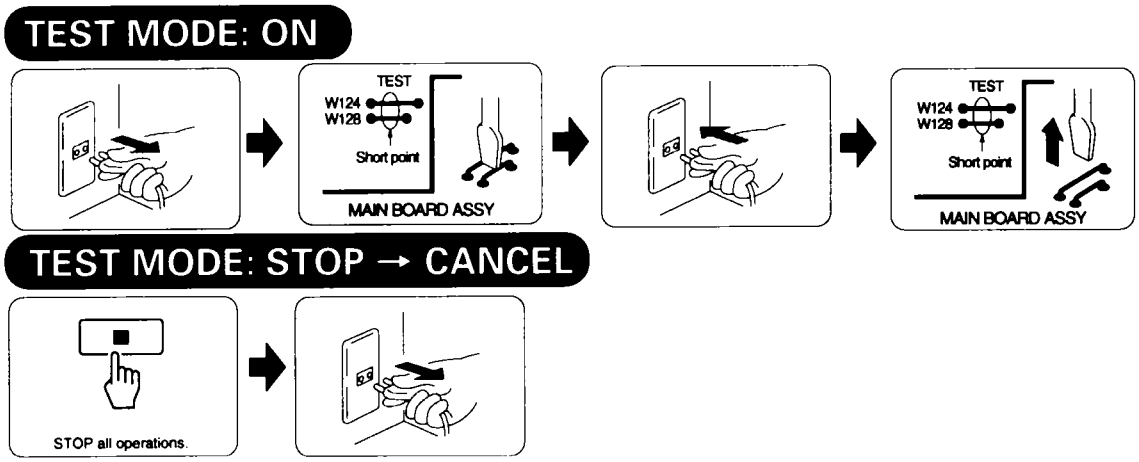
If a failure occurs in the Loading mechanism. the error symbol is automatically displayed on the fluorescent display screen of the front panel.

12.1 ERROR HISTORY AND DISPLAY

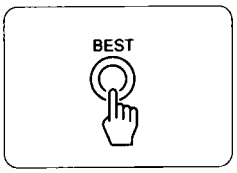
Error history display in test mode

The previously generated errors (NG processing) can be confirmed in the test mode. Since the has a backup function, the error history is memorized even if the power is turned off. (Memory holding time : About two days)

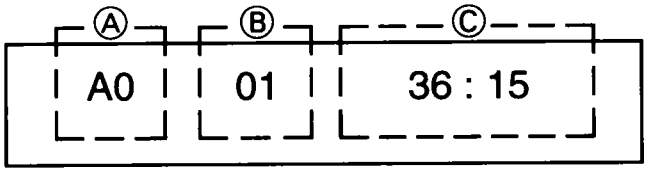
■ Put the unit into the test mode.



■ Press the "BEST" button of the keys on the main body.



An error appears on the fluorescent indicator display by the above operation.
Example)



Ⓐ Disc No. : Error code
Ⓑ Track No. : Error sequence
Ⓒ Minute:second No. : Error generation mode (Only 10's digit is valid.)

The previously generated 16 error codes (maximum) can be memorized. These error codes are displayed one at a time in the ascending order by pressing the "BEST" button again.

Note : A product performs fail safe operation when an error occurs. At that time, an error code is memorized by the fail safe operation after the error is eliminated.

12.2 ERROR HISTORY DISPLAY

1. Disc No. Ⓐ : Detail of error code at portion

<Note> The user display appears only when the normal operation cannot be returned even if the fail safe operation is executed after each error occurs.

User	display	Description
None	A0	• A disc couldn't be detected for playback after loading because; No disc existed. A disc was turned upside down. A disc was dirty. A disc was loaded incompletely. • The focus got out of place during playback due to the crack and stain on the disc.
None	A1	• The servo mechanism couldn't move to the desired tune position within a fixed time during selection of a tune from playback or during playback.
U1	A3	• A disc couldn't be loaded within a fixed time. (A disc couldn't be carried from the rack block.)
	A4	• A disc couldn't be unloaded within a fixed time. (A disc couldn't be returned to the rack block.)
U2	A2	• The LOADING mechanism couldn't move to the desired disc position within a fixed time during selection of a disc from playback or during playback start from stop.
	A5	• The LOADING mechanism couldn't be forcibly returned to the home position (left position when viewed from the front) within a fixed time after it is initialized or becomes NG.
None	A6	• A disc couldn't be normally rotated for playback after loading because; A disc was turned upside down. A disc was dirty A disc was loaded incompletely. • A disc couldn't be normally rotated during playback due to the crack and stain on the disc.

User	display	Description
None	A7	• Mechanism position just before the LOADING mechanism shifts to the disc selection operation when the DCNT pin is low. (The DCNT pin is usually high when the LOADING mechanism is in the stop state. The mechanism position is thus judged to have been shifted for some reason. The shifted mechanism position may cause a failure.)
None	A8	• Discrepancy has occurred between the detected disc position and the current disc position during movement of the loading mechanism. (The system may incorrectly counted the waveforms of the DCNT and DPOS terminals. If counting is incorrect, the position of the disc No. displayed does not match the disc position counted.)
None	A9	• Mechanism position during disc loading when the DCNT pin is low. (The DCNT pin is usually high when the LOADING mechanism is in the stop state. The mechanism position is thus judged to have been shifted for some reason. The shifted mechanism position may cause a failure.)
None	AA	• The pickup block cannot return to the innermost circumference when the playback is Completed or another disc is shifted.

Hood section

User	display	Description
U3	P0	The hood did not open within the specified time. The switch of the hood was malfunctioning.
	P1	The hood did not close within the specified time. The switch of the hood was malfunctioning.
	P2	The hood was attempted to be opened with force when it was completely closed. The switch of the hood was malfunctioning.

2. Track No. Ⓑ : Error sequence in portion

The display of 1 to 16 appears. The low number indicates the recently generated error. The error whose number is "1" was generated most recently.

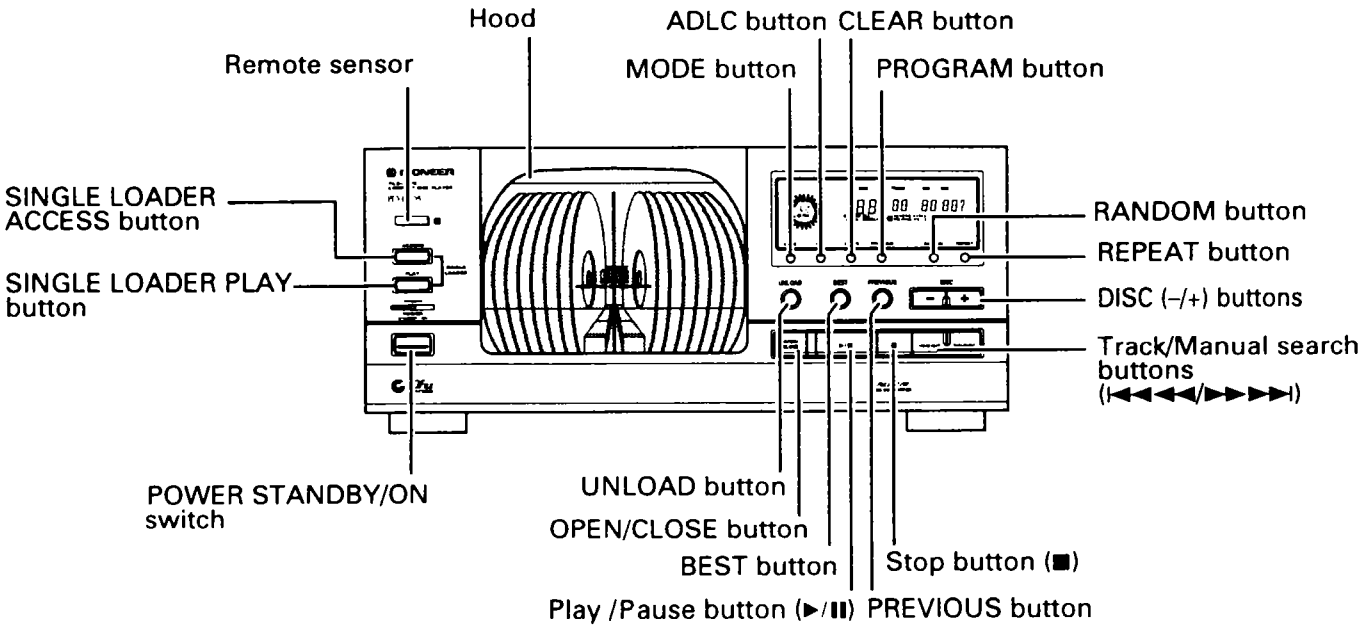
3. Minute : Second No. Ⓒ : Detail of error generation mode in portion

Indicates the internal mode in which the displayed error is generated. The upper digit in "minute : second" has the meaning.

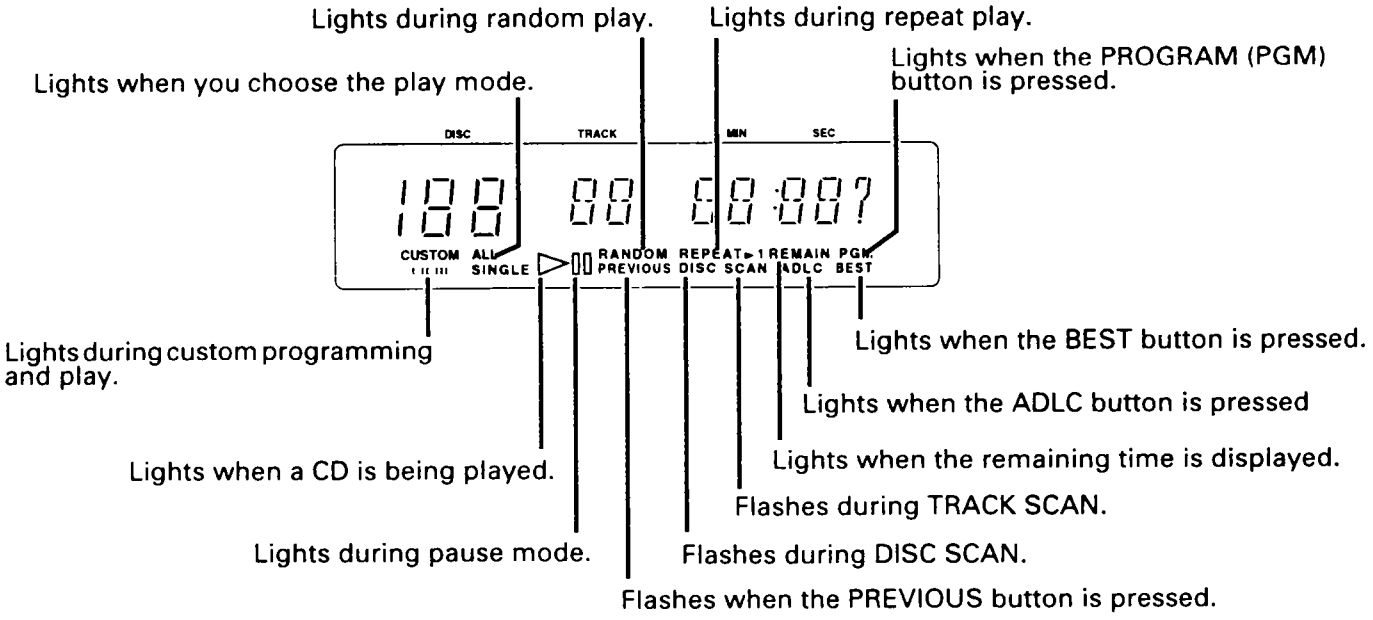
Digit of minute		Digit of second	
Display	Contents	Display	Contents
0 ✱	Spindle stop operation	0 ✱	During closing of the hood and when the hood is completely close
1 ✱	Disc return operation		
2 ✱	Disc selection operation		
3 ✱	Setup operation	1 ✱	During opening of the hood and when the hood is completely open
4 ✱	CD-R setup operation		
5 ✱	TOC read		
6 ✱	Track search operation		
7 ✱	Play		
8 ✱	Pause		
9 ✱	Manual search		

13. PANEL FACILITIES

FRONT PANEL



DISPLAY



14. SPECIFICATIONS

1. General

Type ..... Compact disc digital audio system
Power requirements
U.S. model ..... AC 120V, 60 Hz
U.K. model ..... AC 240V, 50/60 Hz
Power consumption
U.S. model 14W
U.K. model 14W
Operating temperature ..... +5°C - +35°C (+41°F - +95°F)
Weight (without package) ..... 6.5 kg (14 lb 5 oz.)
External dimensions ..... 420(W) X 402(D) X 190(H) mm 16-9/16(W) X 15-13/16(D) X 7-1/2(H) in.

2. Audio section

Frequency response ..... 2 Hz - 20 kHz
S/N ratio ..... 98 dB or more (EIAJ)
Dynamic range ..... 96 dB or more (EIAJ)
Channel separation ..... 96 dB or more (EIAJ)
Harmonic distortion ..... 0.003 % or less (EIAJ)
Level difference between channels ..... 1.0 dB or less (EIAJ)
Output voltage ..... 2 ± 0.3 Vrms (EIAJ)
Wow and flutter ..... less than ±0.001 % (W.PEAK) (below measurable level) (EIAJ)
Channels ..... 2-channel (stereo)

3. Output terminal

Audio line output
Control input/output jacks (Except for U.K. model)
CD-DECK SYNCHRO jack
Optical digital output jack
I/O interface (Except for U.K. model)
Head phone jack with volume control (Except for U.S. model)

4. Accessories

- Remote control unit 1
- Size AA/R6P dry cell batteries 2
- Output cable 1
- Control cable (Except for U.K. model) 1
- CD liner notes file 1
- Index label sheet 1
- Operating instructions 1

NOTE:
Specifications and design subject to possible modification without notice, due to improvements.